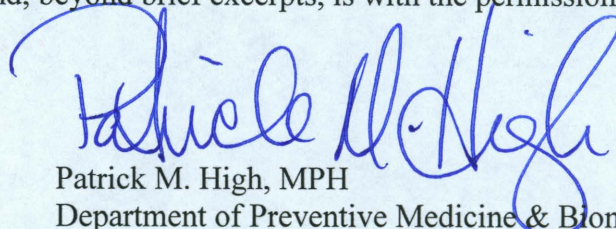


Approval Sheet

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**“HIV Risk Assessment Practices of Primary Care Physicians:
A National Study”**

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ABSTRACT

HIV Risk Assessment Practices of Primary Care Physicians: A National Study

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Doctor of Public Health, 2008

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Background: Twenty five years after it was first discovered HIV/AIDS has become a pandemic that continues to take millions of lives each year. During this time, numerous U.S. Federal agencies and professional societies have recommended that physicians assess their patients' risk for HIV infection. Despite increased options for HIV treatment, it has been more than a decade since any research on provider compliance with risk assessment practices has been published. **Purpose:** The primary purpose of this study was to assess the proportion of U.S. physicians who are "Always/Often" conducting HIV risk assessments. The second purpose of our study was to understand the factors that are associated with physician compliance. Finally, we assessed the proportion of physicians that "Always/Often" asked eight risk assessment questions for four "at-risk" patient groups (i.e., men who have sex with men [MSM], injection drug users [IDU], HIV+ and patients with symptom or diagnosis of a sexually transmitted disease [STD]) and continuing adult patients. **Methods:** A survey was mailed to a national, random sample of 1400 practicing primary care physicians (i.e., family practice, internal medicine,

pediatric medicine and obstetrician-gynecologists) during the first quarter of 2007 utilizing the “Total Design Method.” **Results:** Among the 649 physicians who returned completed questionnaires (49% of those receiving surveys), 498 met our inclusion criteria. A majority of respondents reported they did *not* ask patients “often” or “always” about six of the eight risk practices under study. Physicians were most likely to ask about STD history (57%) and least likely to ask about specific sexual practices (12%). Of the “at-risk” patient groups, physicians were most likely to ask 7 of 8 risk assessment questions of patients presenting with an STD and least likely to ask these questions of MSM and HIV+ patients as compared to their continuing adult patients. **Conclusion:** Primary care physicians are not following recommended practice guidelines for HIV risk assessment. Moreover, physicians who see patients that are at increased risk of HIV infection are conducting very limited HIV screening. This suggests that physicians are missing opportunities to test and counsel patients, and reduce disease transmission.

**HIV Risk Assessment Practices of Primary Care Physicians:
A National Study**

By:
Patrick M. High, M.P.H.

THESIS/DISSERTATION SUBMITTED TO THE FACULTY OF THE
DEPARTMENT OF PREVENTIVE MEDICINE AND BIOMETRICS, UNIFORMED
SERVICES UNIVERSITY OF THE HEALTH SCIENCES IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF
PUBLIC HEALTH, 2008.

Preface

The purpose of this research was to determine physician's willingness to assess and counsel their patients risk for, and to reduce their risk of, HIV/AIDS. As 40,000 incident U.S. cases of HIV are diagnosed each year and the prevalence of AIDS continues to rise, physicians have a primary role to play in preventing their patients from becoming infected with and transmitting HIV/AIDS. The interest in this research is a small part of my wider interest in preventing HIV/AIDS among the most infected and affected population in the U.S. – men who have sex with men. It was within this larger context that a seed was planted during a grant writing course I took my first quarter at Uniformed Services University of the Health Sciences that provided me with the topic that allowed me to pursue my dissertation.

With the conclusion of this dissertation, I would like to thank all the members of my dissertation committee: Tzu-Chen Kao, Ph.D. (Committee Chair), Deborah Girasek, Ph.D., MPH (Dissertation Advisor), Ann I. Scher, Ph.D. and Steven J. Durning, M.D., F.A.C.P. for their continued support throughout the dissertation process. I especially want to thank Dr. Girasek for her untiring commitment to perfection and willingness to review multiple copies of my proposal and manuscripts. Without both her professional experience and editorial skills each document would not have been as well polished and as they have become. I would like to express my appreciation to Dr. Steven J. Durning for his enthusiasm throughout my dissertation and his willingness to individually sign each cover letter that was mailed to study participants. Among the members of the USU community I would also like to thank Cara Olsen, Dr. P.H., MPH for her support and statistical knowledge in helping me best present a small portion of the data I obtained

from my research and Kristin Heitman, Ph.D. for her continued support, interest and friendship throughout my tenure at Uniformed Services University. She never stopped reminding me to “slow down” and look at the deeper meaning of things.

I would like to acknowledge Brenda Harding, my contract administrator, because without her interest in my dissertation project during the review process, I may not have received funding and I therefore would have been unable to conduct this research. As such, this research was primarily funded by the Agency for Healthcare Research and Quality (AHRQ) grant 1R36 HS016583-01.

I should also thank Rob Lipnick, Sc.D., COL, MSC, USA, because without his interest in my application and willingness to become my academic advisor I probably would not have had the opportunity to attend USU.

I would like to thank my family for all the resources they have provided me over the years that have facilitated my educational career and allowed me to pursue my doctoral degree. I’d also like to thank a close friend, Chad Brose, for his initial guidance toward Public Health which resulted in me pursuing and obtaining my MPH. His support, encouragement and friendship have been a great asset throughout my graduate career. Finally, I would like to thank my partner, Robert Costic for his emotional support and help collating survey materials, filling envelopes for mailing and affixing postage to survey packets for the multiple mailings I conducted during my research.

Dedication

I would like to dedicate the work from this thesis and all its findings to the many individuals past, present and future that have had a compassionate, caring and humane primary care physician when they were diagnosed with HIV/AIDS

“Be patient toward all that is unsolved in your heart and try to love the ‘questions themselves’ like locked rooms or books that are written in a foreign tongue. The point is to live everything. Live the questions now. Perhaps you will then gradually, without noticing it, live your ways some distant day into the answers” (Rilke).

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UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Chapter 1

Introduction & Background

HIV Risk Assessment Practices of Primary Care Physicians:

A National Survey

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PUBLIC HEALTH

Submitted by:
Patrick M. High, M.P.H.

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1.1 Abstract

Numerous public health and professional societies have called for physicians to conduct patient risk assessments that include HIV/AIDS. While the few national studies that have been conducted found that physicians infrequently conducted such risk assessments, no adequate measurement of this behavior has been carried out since 1996. The purpose of this study is to close that information gap. Since that time, many changes in the epidemiology and treatment of the disease have occurred. The proposed study would provide data on the current practices of primary care physicians (i.e. obstetrician-gynecologists, family practice, general internal medicine and pediatrics) in the U.S. and identify factors related to non-compliance with HIV risk assessment recommendations.

1.2 Introduction

We are nearing the third decade since the human immunodeficiency virus (HIV) that causes acquired immunodeficiency syndrome (AIDS) was initially discovered in the U.S. in 1981 (1), without a vaccine having been developed. Much has been discovered about the virus that causes AIDS, but much is still unknown about the disease.

AIDS incidence in the United States increased rapidly through the 1980s, peaked in the early 1990s, and then began to decline (2). From the outset, those most affected by and infected with AIDS in the U.S. were men who have sex with men (MSM) and intravenous drug users (IDUs) (3). It was initially unknown what caused and spread the disease. It was not until epidemiologic studies were conducted that it was finally determined that AIDS was a blood borne pathogen spread through sexual contact (3), contaminated needles (3) and contaminated blood and blood products (4). With this knowledge came a greater understanding of how best to prevent the spread of the disease.

The CDC recommended in 1983 that blood and blood products be screened and clotting factors be heated to prevent the spread of the virus that causes AIDS. It was not until 1985; however, that these practices became routine (5, 6). In 1983 the American Red Cross began banning blood donations from those at increased risk or testing positive

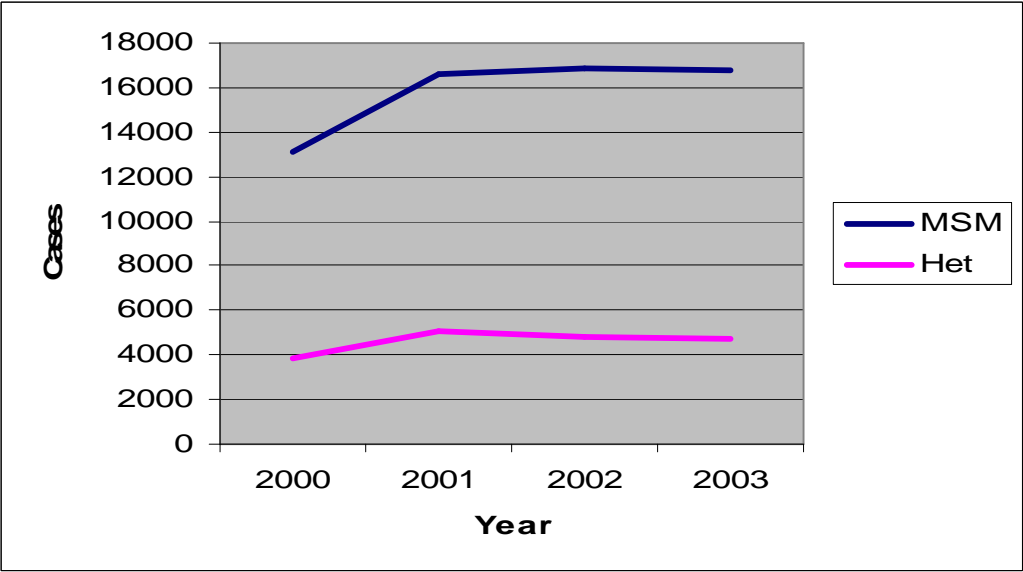
for human T-lymphotropic virus III (HTLV-III)/ lymphadenopathy-associated virus (LAV) infection (4) (later re-named HIV). These groups included intravenous drug users, men who have had sex with men even once since 1977 (4, 7) and previously identified seropositive persons (8). With the implementation of these policies, the risk of AIDS being transmitted via blood and blood products declined from 0.035% in mid 1985 to 0.010% in mid 1988 among American Red Cross donors. Donations to the American Red Cross accounted for over half of all voluntary blood donations in the United States during this time (8). The most recent data (1995) suggests that the risk of contracting HIV is less than one in 450,000 to 660,000 donations of screened blood (9). However, AIDS continues to be transmitted through anal and vaginal sex, oral-genital sex and intravenous drug use (10). With this knowledge, education campaigns were begun to inform the public about the disease and how it was spread.

As the AIDS epidemic nears its thirty-year anniversary, the demographics of those who are infected has begun to change. In the early years, the majority of those infected with the disease were MSM, intravenous drug users, hemophiliacs and children who acquired the disease through perinatal transmission or breast feeding from an infected mother (8). While MSM have remained at highest risk for HIV/AIDS infection and transmission throughout the epidemic, the proportion of racial/ethnic minority infections has continued to rise (11, 12).

The majority of U.S. HIV/AIDS diagnoses continue to be among MSM as evidenced by a 10.8 percent rise among this group from 2000 to 2003 (13) as can be seen in Figure 1 (below). Among MSM, the largest proportion of those being infected with HIV is among non-Hispanic black and Hispanic men (11, 13-16) However, the incidence

of HIV infection has also grown among heterosexuals (13-16) and now women are the fastest growing group of persons newly infected with HIV (17). Heterosexuals ‘of color’ have been particularly affected by the disease.

Figure 1: Estimated annual number of cases of HIV/AIDS among men who have sex with men, by year of diagnosis, 2000-2003 - 32 states* with confidential name-based HIV infection reporting



* The following 32 states have laws or regulations requiring confidential name-based HIV infection reporting: “Alabama, Alaska, Arizona, Arkansas, Colorado, Florida, Idaho, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming” (13)

Between 2000 and 2003, heterosexual non-Hispanic black males were seven times and three times more likely to be infected with HIV as compared to heterosexual non-Hispanic white and Hispanic men, respectively (13), as can be seen in Table 1 (below). During the same time frame, heterosexual non-Hispanic black women were 19 times more likely to contract HIV as compared to heterosexual non-Hispanic white women (Table 1) (13).

Table 1: Incidence of HIV/AIDS transmission by race/ethnicity and sex among 33 states* with confidential name based reporting, 2004 (13)

Race/Ethnicity	Adult & Adolescents					
	Males		Females		Total	
	No.	Rate	No.	Rate	No.	Rate
White, not Hispanic	10,010	18.7	1,782	3.2	11,791	10.7
Black, not Hispanic	12,048	131.6	7,009	67	19,057	97.2
Hispanic	5,517	60.2	1,400	16.3	6,916	39

* “Since 2000, the following 33 states have had laws or regulations requiring confidential name-based HIV infection reporting: Alabama, Alaska, Arizona, Arkansas, Colorado, Florida, Idaho, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming” (13)

As these statistics reveal, the face of the HIV/AIDS epidemic has transitioned from the white to the non-Hispanic black community, while the incident number of HIV diagnoses has remained steady at 40,000 new U.S. cases per year since 1992 (1, 18). The most recent data published by the CDC for the year ending in 2004 estimates there are nearly 1 million prevalent AIDS cases in the United States among adults and adolescents (19) and it is estimated that at least 25% of those infected are unaware of their status (17). The estimated cumulative number of AIDS deaths at the end of 2004 in the United States was 529,113 adults and adolescents (19).

Although the incidence of AIDS cases declined sharply after 1996 (2) the prevalence of AIDS continues to increase. This is due in part to the advent of highly active antiretroviral therapy (HAART) in 1996 (2, 16, 17) resulting in longer longevity. Due to the use of HAART, deaths from AIDS continue to decline while the cost of caring for these individuals continues to rise.

The best methods available to reduce and stop the spread of HIV/AIDS are to abstain from sex, refrain from intercourse with infected individuals (20), use condoms correctly and consistently each time a person performs a sexual act (20), don’t inject or share intravenous drugs and finally, use of HAART (21). Abstinence from sex, while

most effective at preventing HIV/AIDS, cannot be our single approach to prevention because people are inconsistent at abstaining from sex. It is estimated that when condoms are used consistently they are 90 to 95% effective in preventing HIV and between 60 and 90% effective when used inconsistently (22, 23). If a person does inject drugs it is recommended that they do not share needles. HAART does not stop the spread of the disease but does reduce the viral load detected within the body thus potentially reducing the likelihood of transmission (24). Following these prevention methods can reduce the spread of the disease but people must be informed and educated about their effectiveness and be tested for HIV. Numerous federal agencies, including the Centers for Disease Control and Prevention (CDC), (1, 25-28) and professional societies (29-33) have recommended that health care providers, particularly primary care physicians (PCP), conduct sexual risk assessments on all new patients, as well as current patients where indicated. Primary care physicians have been described as “uniquely positioned to provide care for persons with HIV/AIDS because they are more accessible than specialists, especially in medically underserved areas” (34). Through this sexual risk assessment, physicians will be equipped with greater knowledge of their patient’s sexual health and their risk of contracting HIV and AIDS.

1.3 Background & Significance

1.3.1 Recommendations

As part of the HIV Infection Objectives for *Healthy People 2000*, objective 18.9 stated; “Increase to at least 75 percent the proportion of primary care [i.e. family physician, internists, obstetrician/gynecologists and pediatricians] and mental health care providers who provide appropriate counseling on the prevention of HIV and other

sexually transmitted diseases” (12). Upon final review (2001) it was determined that not only had the U.S. not met this goal but had in fact moved away from the year 2000 target (12).

The U.S. Preventive Services Task Force (USPSTF) (19, 35), the CDC Advisory Committee on the Prevention of HIV Infection (36) and the U.S. Public Health Service (25) have advocated that physicians counsel and test all new adolescent and adult patients as well as **patients who are at increased risk for HIV** (emphasis added), those already infected, their partners and pregnant women. Obviously, compliance with this directive requires an assessment of HIV risk status.

As early as 1987 the U.S. Preventive Services Task Force recommended that physicians assess their patients risk for HIV, test members of at-risk groups and conduct behavior modification counseling to prevent exposure to the disease (37). Additionally, the CDC Advisory Committee on the Prevention of HIV Infection (38) and the U.S. Public Health Service (, 1996 #9) have made similar recommendations. In 1996, the U.S. Preventive Services Task Force updated its HIV screening guidelines and recommended that clinicians assess risk factors for HIV transmission by obtaining a sexual history, inquire about injection drug use, conduct periodic screening of those at increased risk of HIV to include all pregnant women who live in areas with increased prevalence of HIV infection and to counsel all patients about effective practices in reducing the risk of HIV infection (39). In 2005, the USPSTF again updated its HIV/AIDS recommendations, this time “strongly” recommending that all physicians screen adolescent and adult patients at an increased risk of HIV infection (A Recommendation) (17). Their rationale was based upon the need for “...appropriately timed interventions, particularly highly active

antiretroviral therapy (HAART) [which] lead[s] to improved health outcomes....” (17). They also noted that routine risk assessment allows physicians to provide risk reduction counseling and education (40). In 2006 the CDC recommended that all patients between 13 – 64 years be tested for HIV (28), however; in 2007 the U.S. Preventive Services Task Force has made no recommendation for or against routine screening of adult and adolescent patients that are not at increased risk of HIV (C Recommendation) (41).

Prior to the 2006 CDC recommendation, they launched a new initiative entitled “Advancing HIV Prevention: New Strategies for a Changing Epidemic” to increase testing and diagnosis. The initiative consisted of four key strategies, the first of which called for; “1) Make[ing] HIV testing a routine part of medical care,” **when indicated** (emphasis added) (1). This may be construed as another endorsement that primary care physicians ascertain their patients risk for, and transmission of, HIV/AIDS.

1.3.2 Justification

McMurchie’s description of primary care in general and primary care physicians in particular is directly relevant to the prevention of HIV. The author states;

Primary care is holistic, patient based, and has as its focus healing rather than cure. Primary care physicians have a role in the prevention of HIV infection, in identifying asymptomatic seropositive people, in offering early therapeutic interventions, in the early detection of opportunistic infections and HIV-related malignancies (42).

It is in this role that more primary care physicians need to see themselves and the services they provide to patients. Through continued risk assessments, that include sexual histories, physicians can begin to impact those most affected by the disease.

As Kerr and others reported (1996), physicians may fail to realize that the general public is more likely to seek testing from their primary physician than from clinic based

sites (43). To address this demand, physicians need to be well equipped and comfortable with ascertaining their patient's sexual risks. The best mechanism by which to obtain this information is during a risk assessment particularly when the purpose of obtaining such a history is to further ensure identification of those at high risk, as well as those infected but asymptomatic with concomitant infections (44).

A major component of the risk assessment conducted by the physician should include a sexual history of all patients. At minimum this should include, "...the patient's sexual orientation, whether the patient is sexually active in an exclusive relationship or with several partners, and whether the patient has a history of STDs or multiple sex partners" (45). These discussions are important because they allow patients to determine their level of risk, need for HIV testing, and how best to change their risky sexual practices (46). Furthermore, physicians should encourage patients who do not know their serostatus, and those at high risk of contracting HIV, to be tested (47).

The physician-patient relationship that can develop through continued sexual risk assessments and routine exams can improve the role of the physician, identify patients infected with HIV and potentially reduce morbidity and mortality of those already infected. Additionally, this may facilitate HIV and AIDS behavior counseling, assessment, testing and treatment (48).

1.3.3 Physician Practices

Data from the *National Health Interview Survey, 2003* suggests that 86% of adults 18 years of age and older had a usual place of health care. "Of those with a usual place of care, 80% considered a doctor's office or health maintenance organization (HMO) to be their usual place of care" (49). This provides physicians with an opportunity to

diagnose and treat a large percentage of the population and to discuss safer sexual practices and other prevention methods that can help reduce HIV transmission. Unfortunately, the majority of PCPs do not seem to be taking advantage of these important opportunities (48, 50-56).

Research conducted in January 1988 among a stratified random sample of 500 primary care physicians (i.e. obstetrician-gynecologists, general internists, family practice physicians and pediatricians), by Bresolin and Rinaldi (57) found that most often sexual and drug histories were taken only when relevant to the differential diagnosis. Only 40% of responding physicians reported obtaining a brief sexual and/or drug use history among all their patients. Obstetrician-gynecologists were more likely to obtain a sexual history as compared to other specialties included in the study.

At the beginning of 1991, Colombotos and colleagues finished conducting a survey of a national random sample of 958 primary care physicians (i.e. family practice, general practice, internal medicine or its subspecialties, pediatrics, general surgery, other surgical specialty, or obstetrician-gynecology), 36% of physicians reported asking about illicit drug use, and a smaller proportion (7%) reported asking about number of recent sexual partners and advised their patients on how to reduce their risk of contracting AIDS (5%) (58).

In 1992, the CDC (59), conducted a study among 2,545 randomly selected U.S. primary-care physicians (i.e. general/family practice, pediatrician/adolescent medicine, obstetrician-gynecologist & general internal medicine), who were asked how often they assess new patients for HIV testing, counseling and treatment practices, as well as their knowledge and beliefs about HIV infection. Forty nine percent of physicians assessed

their adult (≥ 19 years) patients for sexually transmitted diseases, 31% for condom use, 27% for sexual orientation and 22% for number of sex partners. When these same physicians were asked about their sexual risk history taking practices with new adolescent patients (aged 13-18 years), results were similar. Fifty six percent assessed for STDs, 52% condom use, 34% number of sexual partners and 27% sexual orientation (59). As these results demonstrate, physicians are missing opportunities to counsel patients about their risk for HIV infection and transmission. Additionally, the authors found that obstetrician-gynecologists were six times more likely to ask about condom use and three times more likely to ask adults about high-risk sex partners as compared to other primary care physicians surveyed. Furthermore, obstetrician-gynecologists were 1.65 and 1.67 times more likely to ask adult patients about sexual orientation and injection drug use, respectively, as compared to other specialties. Similar results were also obtained when inquiring about adolescent patient practices.

In 2006 Gray and colleagues conducted a national survey among 1,032 American College of Obstetrician-gynecologist (ACOG) Fellows and Junior Fellows to assess their current HIV knowledge and screening practices. Of the 582 surveys returned they found that almost all obstetrician-gynecologists who screened for HIV believe that only 1% to 5% of their non-pregnant patients were at high risk of acquiring HIV. Nearly 75% of physicians responded that they ask their patients about injection drug use and nearly 60% ask about the patients number of sexual partners (60).

Since all of these studies relied on self-report, actual practice patterns may be even worse than these numbers indicate.

Other studies that have been conducted on this topic are summarized, in Table 2 (below).

Table 2: Summary of other physician studies and their findings

Author (Year)	Population Sample(N)	Findings (All are based on self-report)
Lewis & Freeman (1987) (50)	n=1000 internists, family and general practice physicians in California	Only 10% ask new patients questions specific enough to assess exposure to HIV. Less than 4% of physicians have patients complete a history form that asks about sexual orientation or practices. 36% of respondents take a sexual history from new patients 39% obtain such information from continuing patients Younger physicians more frequently obtained sexual histories and conducted more counseling. Similarly, women do more counseling than men and internists do more counseling than other specialties.
Boekeloo, Marx, Kral, Coughlin, Bowman & Rabin (1991) (55)	n=961 internal medicine, family practice, ob-gyn & general practice physicians in the Washington, D.C. metropolitan area	37% and 60% of physicians regularly asked new adult and adolescent patients, respectively, about their sexual practices. Of physicians reporting, 56% asked about condom use, 50% sexual preference, 29% anal or oral sex and 27% number of sex partners. Furthermore, physicians regularly asked homosexual men (87%), IV drug users (81%) and patients who asked about AIDS (92%) about their sexual practices.
Calabrese, Kelley, Cullen & Locker(1991) (48)	n=301 family practice, internal medicine, surgery, ob-gyn and other specialists in Northern, Ohio	Only 24.7% of the time was risk of transmitting or acquiring HIV infection ascertained. Additionally, less than 25% of the time did physicians obtain a sexual orientation and sexual functioning history; however, physicians were more likely (88.6% mean) to routinely discuss alcohol or tobacco than AIDS-related sexual behavior (45.1%).

Ferguson, Stapleton & Helms (1991) (51)	n=354 faculty & 414 residents & fellows in a mid-western teaching institution located in a state with low AIDS prevalence	11% of physicians routinely assessed patients for high-risk behaviors and only when they had reason to suspect the patient was exhibiting high-risk behavior (65%) and when clinical diagnosis suggested AIDS (24%). Primary care and non-primary care physicians assessed for high-risk behaviors similarly (11% vs. 10% respectively) even though 92% of respondents cared for an HIV infected patient in preceding three years.
Gemson, Colombotos, Elinson, Fordyce, Hynes & Stoneburner (1991) (52)	n=473 Internists, family practitioners, general practitioners & ob-gynecologists in New York City	28% of respondents “usually” or “always” counsel new patients on how to reduce their risk of contracting AIDS. 58% of respondents “usually” or “always” take a sexual history of new patients, while only 30% “usually” or “always” ask about number of sexual partners.
McCance, Moser & Smith (1991) (53, 54)	n=765 family physicians	68% of physicians “routinely counsel the patients they see regularly at least once about smoking;” 12% routinely counsel patients about STDs/AIDS and only 18% routinely obtain a sexual history yet, 2/3 of physicians routinely (approximately 100% of the time) counsel about smoking. Information on the number and the sex of partners is routinely conducted 15% and 19% of the time, respectively, while, 33% of physicians routinely ask about history of STDs and 60% omit sexual histories 75% or more of the time. Only 35% of physicians obtain sexual histories from 75% or more of their patients although 80% omit questions about activities that increase the risk of AIDS. Furthermore, 60% of physicians omit sexual histories 75% or more of the time. Lastly, 43% of physicians routinely omit questions regarding homosexuality and 59% omit questions regarding IV drug use.

Boekeloo, Rabin, Coughlin, Labbok & Johnson (1993) (55)	n=268 ob-gyn physicians in Washington D.C. metropolitan area	Obstetrician-gynecologists reported assessing HIV risk of new adolescent and adult patients 67% and 40%, respectively. Fewer than 75% of respondents regularly ask patients about condom use and approximately 1/3 regularly asked about number of sexual partners and specific sexual practices. Less than 2/3 of respondents regularly assess new and continuing adolescent patients about their sexual practices and less than half regularly assess new and continuing adult patients about their sexual practices.
Maheux, Haley, Rivard & Gervis (1995) (56)	n=148 recent graduates from four family practice residency programs in Quebec, Canada	Physicians were less likely to take a sexual history as compared to a drug history. 74% of physicians obtained a sexual risk assessment when the patient presented for their first pregnancy visit and 42% conducted such histories for a general medical examination. Moreover, 32% inquired about high risk practices such as sex with a drug user and 22% asked about anal sex.
Haas & Coe (1997) (61)	n=864 St. Louis University Medical School alumni from 1950 to 1993.	Ob-gyns patient discussion means above 3.24. Ob-gyns highest mean (4.06) for discussion "safe sex." Medicine/Pediatric physicians had the highest mean (2.30) comfort level of knowledge Ob-gyns had lowest means for discussing HIV/AIDS (1.94) and risk factors (1.87). Among all PCP (internal medicine, medicine/pediatrics, pediatrics, family medicine & ob-gyn) physicians mean for all questions relating to HIV was less than 3.0. Physicians who believed they had a higher percentage of patients at risk for HIV/AIDS, the more likely physicians were to discuss HIV/AIDS topics with their patients.

Landon, Wilson, Wegner, Cohn, Fichtenbaum, Bozzette, Shaprio & Cleary (2002) (62)	n=551 PCPs from across the contiguous U.S. (Convenience sample of PCPs identified by HIV infected patients participating in HCSUS)	56% of respondents were general physicians (GPs). Physicians knowledgeable on 75% of questions. GPs who believed they were “experts” had knowledge scores similar to infectious disease (ID) physicians. Physicians that had a case load of ≥ 20 patients were likely to score 80% or higher on knowledge scale. GP “experts” and ID trained physicians were equally likely to score 80% or higher on knowledge scale. Higher the knowledge score the less likely the physician was to refer patients with HIV to other physician.
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This body of research provides further evidence that physicians rarely assess their patients risk for HIV infection and transmission. Such practices may contribute to the large number of HIV seropositive patients who are unaware of their HIV status and their risk of infecting others, particularly when it is estimated that 25% of the nearly one million people infected with AIDS are unaware of their infection (17).

1.3.4 Factors Associated with Non-Compliance

This discussion will be organized into factors that have been associated with compliance by physician versus patient characteristics.

Physician Characteristics: As evidenced by a study conducted by Merrill, Laux and Thornby (1990), physicians do not elicit sexual histories from their patients because of provider embarrassment, feelings of inadequacy in taking a sexual history and fear of offending the patient (63). Similar results were also found by Haley and colleagues (64). To further support this data, an article written by Schreibman and Friedland, discussed the previously mentioned barriers and added that physicians were not conducting risk

assessments due to lack of knowledge on drug and sex-related behaviors, "...lack of discussion skills and reluctance to discuss issues of sex and drug use....," a belief such discussions will be unsuccessful, a lack of perception that their patient is at risk for HIV exposure, lack of a standardized tool in conducting risk assessments and lastly, time and resource constraints (65). Lack of time and resource constraints was a barrier also found by Kushner (66). The lack of a standardized tool to aid in screening practices not supported by a licensing or professional body was also in two studies (67, 68). When Colombotos and colleagues conducted a national survey of primary care physicians, described previously, they found that 66% of physicians believe they are "not very competent" or "not at all competent" in caring for patients with HIV (58).

Maheux and colleagues in 1995 found that surveyed physicians believed they would make their patients uncomfortable by asking about their sexual history (56). This is similar to results found by Fredman and colleagues (1989), where 75% of physicians would prefer to answer questions about sexual practices rather than ask their patients. They also reported that 28% of physicians felt uncomfortable asking homosexuals about their sexual practices (69). Analogous results obtained by Boekeloo and colleagues (1991), have shown that even when patients indicate risky behaviors or concerns about HIV, many physicians do not discuss these issues (70).

Many of these barriers reflect a physicians low self-efficacy, which is described as the "...confidence a person feels about performing a particular activity including confidence in overcoming the barriers to performing that behavior" (71). Self-efficacy is a component of most well accepted health behavior theories. For instance, when the Health Belief Model was originally developed by Bandura in 1977 it did not take into

account self-efficacy. It was later found that self-efficacy decreased variability when predicting behavior; therefore it became an integral component of future theories and models. Furthermore, models and theories such as the Social Cognitive Theory and the Transtheoretical Model (Stages of Change) have incorporated self-efficacy when they were developed (71).

The Social Cognitive Theory (SCT) was developed to promote behavior change and address the psychosocial dynamics that influence health. “Within SCT, human behavior is explained in terms of a triadic, dynamic, reciprocal model in which behavior, personal factors (including cognitions), and environmental influences all interact” (71).

The Transtheoretical Model (Stages of Change) consists of multiple constructs; self-efficacy, process of change and stages of change. The Stages of Change are used to describe the process through which an individual progresses as they work to diminish their addictive behavior (71).

Patient Characteristics: Maheux and colleagues also found additional barriers to the one’s listed above. They found that physicians were less likely to obtain a sexual history with male patients, homosexuals, new patients, patients of different racial-ethnic backgrounds from themselves and married persons (56). When Lewis and Freeman (1987) assessed barriers among physicians they found that physicians who were discomforted when dealing with homosexuals were significantly less likely to take sexual histories (21% versus 37%) and provide adequate counseling (12% versus 38%) than physicians responding with little or no discomfort, respectively (50).

Further barriers noted by Gerbert and colleagues (1991), were that a majority of physicians would not treat intravenous drug users and the authors also noted that a

“...sizable minority endorsed items indicative of homophobia”. For example, 35% of respondents agreed that “homosexuality is a threat to many of our basic social institutions” (72).

When Colombotos and colleagues (1994) conducted a national survey, they found that 61% of physicians surveyed “would rather not care for patients who are HIV positive” while 40% were “completely willing” to care for “patients with AIDS.” Additionally, only 50% of physicians were “completely willing” to care for homosexual men whereas only 29% were willing to care for injection drug users (IDUs). Further results included the finding that; physicians were less willing to provide care to patients with AIDS, gay men and IDUs as compared to treating other disease conditions. The authors concluded that physicians “moral condemnation of gay men and IDUs is embedded in deeply rooted religious and political beliefs” and that such beliefs present major barriers to treating these groups (58).

These results indicate that physician’s beliefs, knowledge, attitudes and a general lack of appreciation for the role they could play in their ability to prevent infections among at-risk individuals act as barriers when assessing patients risk for HIV infection and transmission. Any study conducted should measure physician attitudes/beliefs, knowledge and self-efficacy.

1.3.5 Measurement Gaps

It has been more than a decade since any national measurements have been conducted to assess whether primary care physicians are conducting sexual risk assessments of their patients. While some research has been done to assess physician’s attitudes, beliefs and knowledge that act as barriers to assessing their patients risk for

HIV, most of this work is also more than a decade old. Additionally, limited research has been performed on a national scale assessing primary care physician practices in obtaining a sexual risk assessment from their patients. The last such study to be undertaken was conducted in 1997-98 by the Centers for Disease Control and Prevention to assess whether the nation met Objective 18.9 in *Healthy People 2000*; however, response rates for each physician group being studied were too low to produce reliable estimates (12). Given the acknowledged importance of this physician behavior, we need an accurate estimate of current practices, and a better understanding of what is contributing to poor compliance.

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UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Chapter 2

Manuscript 1

**HIV Risk Assessment Practices of Primary Care Physicians:
Results from a National Survey**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PUBLIC HEALTH

Submitted by:
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2.1 Abstract

Background: Numerous Federal agencies and professional societies have recommended that physicians assess their patients' risk for HIV infection. It has been more than a decade; however, since any reports on physician risk assessment practices have been published. The purpose of this study was to close that information gap. **Methods:** A survey was mailed to a national, random sample of 1400 practicing primary care (i.e., family practice, internal medicine, pediatric medicine and obstetrician-gynecologist) physicians. **Results:** Among the 649 physicians who returned completed questionnaires (49% of those receiving surveys), 498 met our inclusion criteria. A majority of respondents reported they did *not* ask patients "often" or "always" about six of the eight risk practices under study. Physicians were most likely to ask about STD history (57%) and least likely to ask about specific sexual practices (12%). The mean HIV risk assessment compliance among physicians ranged from "rarely" to "sometimes" regardless of the risk practice in question. **Conclusion:** Primary care physicians are not following recommended practice guidelines for HIV risk assessment. This suggests that they are missing opportunities to test and counsel patients, and reduce disease transmission.

2.2 Introduction

Numerous Federal agencies (1-5), and professional societies (6-10), have recommended that health care providers, particularly primary care physicians (PCPs), conduct sexual risk assessments on their patients. Through such sexual risk assessments, physicians can evaluate their patient's sexual health and their risk of contracting HIV and AIDS.

Healthy People 2000's, objective 18.9 stated; "Increase to at least 75 percent the proportion of primary care [i.e., family physician, internists, obstetrician/gynecologists and pediatricians] and mental health care providers who provide appropriate counseling on the prevention of HIV and other sexually transmitted diseases" (1). Upon final review (2001) it was determined that not only had the U.S. not met this goal but had in fact moved away from the year 2000 target (11).

In 2003, the Centers for Disease Control and Prevention (CDC) launched a new initiative that recommended physicians make HIV testing a routine part of medical care,

particularly when indicated (4). This may be construed as another endorsement that primary care physicians should ascertain their patients' risk of developing and transmitting HIV/AIDS.

According to the 2003 *National Health Interview Survey*, among the 86% of adults that had a usual place of care, 80% received healthcare from a doctor's office or health maintenance organization (12). Such visits provide physicians with opportunities to discuss safer sexual practices and other HIV prevention methods with a large percentage of the population. Primary care physicians represent the first line of defense against the disease because they are more accessible, particularly in underserved areas (13) and they also act as "gatekeepers" for referral to specialists. Unfortunately, several national studies indicate that primary care physicians rarely ask questions that would allow them to determine their patient's risk of HIV infection (14-16). Additionally, sexual and drug histories are most often included when they are perceived as relevant to the differential diagnosis (16).

Several barriers have been associated with physician non-compliance with screening recommendations. Providers reported being embarrassed to ask such questions of patients, feeling they lacked the skills needed to take a sexual history, and feared they might offend patients (17, 18). Schreibman and colleagues (19) have noted additional barriers including lack of knowledge on drug and sex-related behaviors, lack of discussion skills and a reluctance to discuss the sensitive topics of sex and drug use. Non-compliant physicians believed such discussions would be unsuccessful and they did not perceive their patient was at risk for HIV exposure (17, 18, 20). Many of these may be characterized as low "physician self-efficacy." Self-efficacy is defined as

“...confidence a person feels about performing a particular activity including confidence in overcoming the barriers to performing that behavior” (21). Self-efficacy has been found to be consistently associated with health-related behavior changes.

The absence of a standardized tool for conducting assessments (22-24) has also been cited as contributing to low levels of compliance. These results suggest that physician’s beliefs, attitudes and a lack of system support (i.e., training and screening tools) contribute to inadequate assessing of patients risk for HIV infection and transmission.

2.2.1 Measurement Gaps

It has been more than a decade since any national measurements have been conducted to assess whether primary care physicians are obtaining sexual risk assessments of their patients. Research assessing physician’s related attitudes (14, 25, 26), beliefs (27, 28), and knowledge (15, 29) is also out of date. During this decade, the incidence of HIV infection has grown among heterosexuals and women are now the fastest growing group of persons newly infected with HIV (30). Although the incidence of AIDS cases declined sharply after 1996 (31) the prevalence of AIDS continues to increase. This is due in part to the advent of highly active antiretroviral therapy (HAART) in 1996 (30-32) resulting in longer longevity.

The primary purpose of this study was to assess the proportion of physicians who are currently conducting HIV risk assessments. The second purpose of our study was to understand levels of compliance and those factors that are associated with physician compliance.

2.3 Methods

2.3.1 Sampling Frame and Recruitment

A list containing the addresses of 1400 practicing primary care physicians (i.e., general internists, family practice, pediatric medicine and obstetrician-gynecologists) was obtained from Medical Marketing Systems, Inc., a vendor of the American Medical Association (AMA) Masterfile. The AMA Masterfile contains data on all physicians currently practicing in the U.S and abroad regardless of their membership in the AMA (33).

We requested our mailing list vendor to construct a sampling frame consisting of all physicians in the AMA Masterfile who a) conducted ≥ 20 hours per week in direct patient care, b) were in solo practice, group practice, a health maintenance organization or other practice, and, c) listed primary specialties of general internal medicine, family practice, pediatric medicine or obstetrician-gynecologist. Equal numbers of participant addresses (n=350) for each specialty were obtained. The sample frame was restricted to these four types of specialties because they were listed as part of Objective 18.9 in *Healthy People 2000* (1). Physicians that practiced twenty hours or more per week were included because it was believed part-time providers would see HIV/AIDS patients during practice hours. We excluded physicians that listed a post office box as part of their mailing address because our protocol required certified mail receipts to be signed. In addition to physician addresses, the AMA datafile we purchased included year of birth and sex.

2.3.2 Survey Distribution

In an effort to maximize response rates, we utilized each of the five major components of Dillman's "Total Design Approach" (34). Questionnaire packets included; 1) a research letter printed on university letterhead and personally signed by the Primary Investigator and a physician, 2) questionnaire instructions with statement of consent, 3) physician survey in booklet format, 4) a self-addressed stamped return envelope and 5) a \$5 cash incentive. The questionnaire packets were initially sent via certified mail utilizing the U.S. Postal Service (USPS). This method was chosen because research has shown an increased response rate of 2.3 times over surveys sent via first class mail (35). Non-responders received 3 subsequent mailings at two week intervals.

2.3.3. Survey Instrument

The survey instrument was adapted from Bluespruce and colleagues; methods of original survey development have been discussed previously (36). The questionnaire, available upon request, was printed in booklet format and contained a unique identifier which allowed for response tracking

2.3.4 Variable Measurement

Risk Assessment Definition. Our dependent variable, recommendation compliance, was defined as choosing "Always" or "Often" when we asked; "In the past 3 months, how often have you asked your patients about the following topics;"

1. number of sexual partners,
2. gender of sexual partners,
3. specific sexual practices,
4. risk factors of partners that may put [the patient] at increased risk of HIV,

5. condom use,
6. history of sexually transmitted disease,
7. injection drug use, and
8. HIV testing.

Each risk assessment question used Likert Scaling with multiple response categories (i.e., 1 to 5) with an additional response for “NA/Not part of my job.” A summary score (mean degree of compliance) was calculated based on the average of the eight responses as described in the methods (below).

Items tested for association with Degree of Compliance were conceptualized as measuring six constructs: physician characteristics, self-efficacy, knowledge, attitudes/beliefs, outcome expectations, and perceived barriers.

Physician Characteristics. Physician characteristics included having received post-graduate training in HIV risk assessment/counseling in the last 12 months/ever, specialty, board certification, gender, sexual orientation (heterosexual, other), age, race (White, Asian, Black/African-American, Other), ethnicity, U.S. census region where physician currently practices (Northeast, South, Midwest, West), importance of religion in everyday life (very important, fairly important, not too important, not at all important), religious thinking (liberal, moderate, conservative) and religious affiliation (Protestant, Roman Catholic, Jewish, Hindu/Muslim/Other).

Self-Efficacy. We measured assessment self-efficacy by averaging responses to the following 11 items; confidence in the accuracy of sexual information received from patients, I am well trained in taking a sexual history, ability to ask questions to determine patients risk of HIV infection, ability to assess patient’s readiness for behavior change,

comfort in taking a sexual history, comfort in asking gay men about their sexual practices, comfort in asking patients about their substance use behavior and finally, four questions assessing the confidence of physicians in asking about smoking, alcohol use, sexual orientation and specific sexual practices when taking a medical history.

Additionally, we included five items meant to measure counseling self-efficacy. A mean counseling score was computed by averaging responses to the following five items; confidence in helping patients reduce their risk of HIV infection, ability to counsel patients about HIV antibody testing, confidence in skills counseling gay men and non-monogamous heterosexuals on how to avoid transmitting or acquiring HIV infection (separate questions) and finally comfort discussing sex with teenage patients. Cronbach's alpha was used to determine intra-item reliability of these self-efficacy scores.

Knowledge. Physicians' knowledge of a person's risk of acquiring HIV when engaging in vaginal intercourse and receptive anal intercourse, when not using a condom (separate questions) and for the physician, when providing routine health care services for an HIV-positive person, were asked. Answer choices for each question ranged from one ("High") to five ("No Risk") with an additional category of eight ("Don't Know"). Responses were dichotomized into "Knowledgeable" and "Not Knowledgeable" for each question. To be considered knowledgeable physicians had to choose "High" as a response for the first two questions and "Low/Very Low" for the third question.

Attitudes/beliefs. Attitudes/beliefs were assessed utilizing 9 questions about physician's agreement/disagreement with patients' HIV risks and physician's role in preventing HIV. The following 9 items were assessed; almost all gay men have high risk sex, most HIV-infected drug users are concerned about spreading HIV, I have difficulty

being sympathetic to patients with AIDS contracted through unprotected sex, patients sexual practices are of little importance to understanding a patient's problems, I become frustrated with patients who continue to put themselves at high risk for HIV by having unprotected sex, patients between 13-64 years should be routinely tested for HIV, the role of the healthcare provider in helping high-risk people reduce their risk of HIV is limited, I am concerned about accidentally contracting AIDS from a patient and finally, I need to know about a patient's specific sexual practices to counsel him/her about HIV prevention. Responses were dichotomized into "Strongly Disagree/Disagree/Neither Agree or Disagree" and "Agree/Strongly Agree."

Outcome Expectations. Four questions were used to measure outcome expectations. These items were; If more providers counseled their patients about STDs and HIV, rates of infection in the population would decrease, counseling patients about HIV prevention has an impact on behavior, repeated messages from providers about reducing HIV risk has a positive impact on patient's behavior and finally, married patients will be offended if asked about their sexual risk behaviors. These questions were dichotomized and a mean outcome expectation was created by averaging the four items.

Perceived Barriers. Five questions assessed potential barriers that may cause physicians to not talk to "at-risk" patients. These barriers included; not enough time, other medical issues take precedence, patients are not comfortable discussing sexual behaviors, not enough staff and finally, have not established sufficient rapport with patient. Responses were categorized into "Not at all/Slightly/Somewhat Important, Very/Extremely Important" and "NA/Not part of my job."

2.3.5 Analysis

SPSS version 12.0.1 for Windows was used to perform data analysis. Survey responses were double-entered and compared to ensure accuracy.

Mean degree of compliance score. Mean responses to the eight questions from the risk assessment definition were used to compute a Degree of Compliance score.

Descriptive statistics included means and proportions. We modeled mean compliance using linear regression, with predictors of physician compliance grouped into three summary scores (i.e., outcome expectations, assessment and counseling self-efficacy) and four categories (i.e., knowledge, attitudes/beliefs, perceived barriers and physician characteristics) representing the conceptual framework previously described. When linear regression was performed during group analysis, variables with a variance inflation factor >10 were considered to be collinear (37) and removed from the analysis. Statistically significant correlations were then entered into a stepwise ($P \text{ Enter} \leq .10$, $P \text{ Remove} \geq .101$) multiple linear regression model.

Stepwise multiple linear regression was used as this method allows for re-examines each variable prior to entry into the model based on preset criteria. As each significant variable is added when $P \leq .10$ and removed from the model when significance reached $\geq .101$. $P \text{ Enter} \leq .10$ was used because it was less conservative than .05 and allowed us to identify more variables that might be significantly associated with the outcome under study. Variables $\geq .101$ was used because the authors did not want the exit criteria to be overly large otherwise the stepwise utility would have been lost (37).

A second, forced entry model was then run with all significant ($P \leq .05$) variables from the full model and their associated categories. Logistic regression was used to compare responders to non-responders.

2.3.6 Human Subjects Protection

Our study was approved to be exempt by the Institutional Review Board of the Uniformed Services University.

2.4 Results

2.4.1 Response Rate

Of the original 1400 surveys mailed, 70 packets were returned undeliverable by the conclusion of the data collection phase of the project. Six hundred forty nine questionnaires were returned completed and 42 were returned blank. This represents a survey response rate of 48.7 percent (i.e., 649 returned complete questionnaires of 1330 mailed).

Before data analysis was begun, 151 participants who did not meet the inclusion criteria were excluded. Participants were excluded because they did not choose a primary care specialty under study (n=23), did not practice medicine in their specialty (n=40), practiced medicine <20 hours per week (n=27), were retired (n=25) or practiced medicine in the U.S. Department of Defense health care system (not including Veterans Affairs) (n=36). Participants with missing data on any of these questions were also excluded. Data were collected during the first quarter of 2007.

2.4.2 Non-respondent analysis

Responders and non-responders were similar by age and gender; however, responders were more likely to be pediatricians (P=.011) and from the Midwest (P=.049).

2.4.3 Sample Description

Data analysis was performed on responses submitted by the 498 primary care physicians that met our inclusion criteria. Characteristics of the sample participants can

be found in Table 1. Briefly, participants were predominately White (77.7%), non Hispanic/Latino (77.7%) and male (62.7%). Their average age was 48.7 (SD=11.0) years.

Table 1: Characteristics of the study sample

	n	%		n	%
Primary Care Specialty			Hours in direct patient care activities		
Family Practice	135	27.1	20-30 hours	69	13.9
Pediatrics	150	30.1	31-50 hours	256	51.4
Internal Medicine	106	21.3	51-80 hours	136	27.3
Ob-gynecologist	107	21.5	>80 hours	37	7.4
Board Certified			Country received medical degree		
Yes	464	93.2	United States	421	84.5
No	33	6.6	Other	76	15.3
Missing/Refused	1	0.2	Missing/Refused	1	0.2
Practice Setting			Gender		
Solo	109	21.9	Male	312	62.7
Group	336	67.5	Female	186	37.3
Hospital	20	4	Sexual Orientation		
Medical school	12	2.4	Heterosexual	478	96
Government (Non DoD)	4	0.8	Other	15	3
Other	17	3.4	Missing/Refused	5	1
Race			Importance of religion		
White	387	77.7	Very	198	39.8
Asian	61	12.2	Fairly	144	28.9
Black/African-American	21	4.2	Not too important	80	16.1
Other (American Indian/Alaskan Native & Native Hawaiian/Other Pacific Islander)	5	1.2	Not very important	71	14.3
Unknown/Not Sure	0	0	Missing/Refused	5	1.0
Missing/Refused	24	4.8			

Ethnicity		
Hispanic or Latino	32	6.4
Not Hispanic or Latino	387	77.7
Unknown/Not Sure	17	3.4
Missing/Refused	62	12.4
Practice Census Region		
Northeast	105	21.1
South	170	34.1
Midwest	123	24.7
West	100	20.1

Religious thinking		
Liberal	210	42.2
Moderate	167	33.5
Conservative	109	21.9
Missing/Refused	12	2.4
Religious affiliation		
Protestant	147	29.5
Roman Catholic	110	22.1
Jewish	46	9.2
Hindu/Muslim/Other	48	9.6
Missing/Refused	147	29.5

Table 2 (below) represents the U.S. primary care physician population, for select demographics, as published by the American Medical Association (AMA) through the year ending in 2006 (38); the year in which the AMA Masterfile address list was purchased. When the proportion of physicians in our study are compared by specialty to that of the U.S. primary care physician population Pediatricians and Obstetrician-Gynecologists were over represented by 10.9% and 8.7%, respectively, whereas Internal Medicine and Family Practice physicians were under-represented by 16.4% and 3.1%, respectively.

Table 2: U.S. primary care physician population for select demographics as published by the American Medical Association (AMA) through year ending 2006 (38).

	N*	%
Specialty**		
Family practice	93,224	30.2
Pediatrics	59,094	19.2
Internal Medicine	116,230	37.7
Obstetrician-gynecologist	39,667	12.9

Board Certified		
Yes	202950	67.4
No	97957	32.6
Race[‡]		
White	186,547	66.1
Asian	51,404	18.2
Black/African-American	16,555	5.9
Other (American Indian/Alaskan Native)	6,994	2.5
Ethnicity[‡]		
Hispanic	20,800	7.4
Not Hispanic	261,500	92.6
Country received medical degree[‡]		
United States	210,361	69.9
Other	90,546	30.1
Gender[‡]		
Male	174,670	60.6
Female	113,666	39.4%
Census Region[‡]		
Northeast	79,151	28.1
South	113,113	40.2
Midwest	72,907	25.9
West	16,218	5.8

*U.S. primary care physician population

**Received from vendor of the AMA Masterfile when purchased address list

[‡]Population and percentage estimates based on U.S. primary care physicians in patient care

2.4.4 Risk Assessment Practices

Table 3 shows the proportion of respondents who “Often/Always” asked each of the eight risk assessment questions. In the past three months, slightly more than half of the physicians “Often/Always” asked their patients about a history of STD (56.6%) and use of condoms (53.6%) while all other risk assessment questions were infrequently

asked (i.e., a majority of respondents reported only “Sometimes,” “Rarely” or “Never” assessing the patients’ HIV risk status).

Table 3: Proportion compliance, by sexual risk assessment item

Question	Never/Rarely/ Sometimes	Often/ Always	NA/ Not part of my job
	n (%)	n (%)	n (%)
Number of sexual partners	333 (66.9)	155 (31.1)	8 (1.6)
Gender of sexual partners	367 (73.7)	121 (24.3)	8 (1.6)
Specific sexual practices	423 (84.9)	62 (12.4)	10 (2.0)
Risk factors of partners that may put [the patient] at increased risk of HIV	373 (74.9)	114 (22.9)	10 (2.0)
Use of condoms	222 (44.6)	267 (53.6)	7 (1.4)
History of STD	205 (41.2)	282 (56.6)	8 (1.6)
Injection drug use	261 (52.4)	228 (45.8)	8 (1.6)
HIV testing	336 (67.5)	152 (30.5)	8 (1.6)

2.4.5 Risk assessment: Level of Compliance

As described in the methods, we calculated a mean degree of compliance score by averaging responses to our risk assessment questions for those physicians who answered at least six of the eight questions (i.e., 98% of respondents). The overall mean compliance score was 2.96 (SD=0.914) based upon a scale in which 1= “Never,” 2= “Rarely,” 3=“Sometimes,” 4=“Often” and 5=“Always.” Mean compliance scores for each risk assessment question were then computed (Table 4).

Table 4: Mean (SD) degree of compliance, by risk assessment question

Question	n	Mean (SD)
Number of sexual partners	488	2.86 (1.13)
Gender of sexual partners	488	2.63 (1.13)
Specific sexual practices	485	2.36 (.985)
Risk factors of partners that may put [patient] at increased risk	487	2.56 (1.07)
Use of condoms	489	3.46 (1.15)
History of STD	487	3.59 (1.16)
Injection drug use	489	3.23 (1.24)
HIV testing	488	2.90 (1.11)

2.4.6 Factors Associated with Compliance

Physician Characteristics. Physician characteristics that had a significant positive association the with mean degree of compliance score can be found in Appendix G, Table 1, and included: having received post graduate training in HIV risk assessment/counseling in the last 12 months ($P=.000$) or ever ($P=.002$), being Black/African American ($P=.000$), American Indian/Alaskan Native/Native Hawaiian/Other Pacific Islander ($P=.029$) and of Jewish religious affiliation ($P=.004$). Characteristics that had a significant negative association with the mean degree of compliance included being a family practice ($P=.000$), pediatric ($P=.000$), or internal medicine ($P=.000$) physician, being male ($P=.000$) and conservative in religious thinking ($P=.007$). Additionally, age ($P=.019$) was also negatively associated with mean degree of compliance.

Knowledge. Not responding to the question, “Please estimate a person’s risk of acquiring HIV when engaging in vaginal intercourse not using a condom with an HIV positive person” was negatively associated ($P=.007$) with degree of compliance. Additionally, being knowledgeable ($P=.039$) and not answering the question ($P=.016$)

about a person's risk of acquiring HIV when engaging in receptive anal intercourse not using a condom were positively associated with degree of compliance (Appendix G, Table 2).

Self-Efficacy. Both, assessment ($P=.000$) and counseling ($P=.000$) self-efficacy were positively associated with the dependent variable, degree of compliance (Appendix G, Table 3).

Outcome expectation. Outcome expectation ($P=.000$) was positively associated with mean degree of compliance. This demonstrates that physician's who "Agree/Strongly Agree" with these questions was more likely to incorporate HIV risk assessment questions in their practices (Appendix G, Table 4).

Attitudes/Beliefs. Among the 9 questions that assessed physicians attitudes/beliefs (Appendix G, Table 5), responding "Agree/Strongly Agree" to the question; "All patients between the ages of 13-64 should be routinely tested for HIV," ($P=.000$) was positively associated with the outcome while believing that "The role of the healthcare provider in helping high-risk people reduce their risk of HIV infection is limited," ($P=.000$) was negatively associated with degree of compliance.

Perceived barriers. Of the five questions that explained barriers to risk assessment (Appendix G, Table 6), only one was negatively associated with the outcome: "not having enough staff on my team to support me" ($P=.022$). Physicians that chose "NA/Not part of my job" ($P=.017$) were also negatively associated with degree of compliance.

All significant variables were entered into a stepwise multiple linear regression model (previously described), which included the responses of 485 participants and

accounted for 50.5% of the sample's variability. The results of our second, final model (previously described) can be found in Table 5. It is based upon data from 485 participants, and accounted for 50.2% of the variability in our outcome.

Table 5: Reduced linear regression model: Factors associated with mean degree of compliance

Independent Variables	B	P-value*
Assessment Self-Efficacy	0.557	0.000
Counseling Self-Efficacy	0.294	0.000
Please estimate a person's risk of acquiring HIV when engaging in vaginal intercourse not using a condom with an HIV-positive person.		
Not knowledgeable (answered Moderate/Low/Very Low/None/Don't Know)	Ref.	
Knowledgeable (answered High)	-0.048	0.459
Missing/Refused	-0.807	0.029
Agreement/disagreement with the following statement: All patients between the ages of 13-64 should be routinely tested for HIV.		
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.	
Agree/Strongly Agree	0.200	0.006
Missing/Refused	0.270	0.616
Agreement/disagreement with the following statement: The role of the healthcare provider in helping high-risk people reduce their risk of HIV infection is limited.		
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.	
Agree/Strongly Agree	-0.140	0.077
Missing/Refused	0.145	0.792
Importance of why you do not talk to "at-risk" patients; I don't have enough staff on my team to support me.		
Not at all/Slightly/Somewhat Important	Ref.	
Very/Extremely Important	-0.006	0.944
NA/Not part of my job	-0.334	0.084
Missing/Refused	-0.461	0.010

Have you received post graduate training in HIV risk assessment/counseling in the last 12 months/ever?			
None	Ref.		
Last 12 mos.	0.423		0.000
Ever	0.180		0.037
Missing/Refused	0.573		0.003
What is your specialty?			
Obstetrician-gynecologist	Ref.		
Family Practice	-0.471		0.000
Pediatrics	-0.406		0.000
Internal Medicine	-0.539		0.000
Sex			
Female	Ref		
Male	-0.302		0.000
Race			
White	Ref		
American Indian/Alaskan Native/Native Hawaiian/Other Pacific Islander	0.615		0.046
Asian	0.019		0.856
Black/African-American	0.439		0.005
Missing/Refused	-0.073		0.628
In your religious thinking do you consider yourself to be...			
liberal	Ref.		
moderate	0.047		0.525
conservative	-0.082		0.340
Missing/Refused	0.154		0.448
Currently, what is your religious affiliation?			
Protestant	Ref.		
Roman Catholic	0.176		0.049
Jewish	0.375		0.002
Hindu/Muslim/Other	0.284		0.019
Missing/Refused	0.161		0.058

*Bold represents significant association (P<.05)

2.5 Discussion

Our study indicates that the majority of primary care providers are not conducting in-depth risk assessments to determine their patient's risk of HIV infection. Only two of

eight risk assessment questions (i.e., history of STDs and use of condoms) in this study were “Always/Often” asked by more than half of our respondents on a routine basis. Only 12.5% of physicians asked about the gender of their patients sexual partners. History of STDs was assessed slightly more in our study than that reported in a previous study conducted by the CDC (15) and that found by Bresolin and colleagues (16). The proportion of physicians assessing use of condoms in this study was similar to that found by Boekeloo and colleagues (39). That study team found physicians were more likely to assess for history of STDs (71%) and IV drug use (61%) than we did, however, this may be due to a difference in the wording of questions.

The proportion of physicians asking patients about number of sexual partners were slightly higher in our study than reported by the CDC (15, 40) and much higher than that reported in two national studies (14, 41). In the CDC study, physicians were asked about patient sexual orientation while in our study physicians were asked about the gender of patient’s sexual partners. Our sample reported slightly higher rates of compliance.

To our knowledge, this was the first research that calculated a degree of compliance score. The mean degree of compliance for all questions was 2.96 (SD=.914), and ranged from “Rarely” to “Sometimes” which suggests that physicians are infrequently conducting “in-depth” risk assessments to determine their patients risk of HIV infection and transmission. We found that use of condoms (3.46), history of STD (3.59) and injection drug use (3.23) were the most frequently asked questions. Bresolin and Rinaldi (16) also found these to be the most frequently asked questions.

Ten characteristics emerged from our regression analysis as being associated with risk assessment practices. Of these, assessment and counseling self-efficacy, physician post-graduate training in HIV risk assessment/counseling, attitude/beliefs (i.e., “Agree/Strongly Agree” that “All patients between the ages of 13-64 should be routinely tested for HIV”) and knowledge could be targeted for change. Provider characteristics (i.e., specialty, sex, race and religious affiliation) are not modifiable, but they indicate subgroups that may need more training and skills development. Furthermore, if physicians were more motivated to take a thorough sexual history, they might explore options for removing perceived barriers to the practice (i.e., lack of staff).

Several studies (42-45), have shown that self-efficacy is an integral component of physician ability to perform risk assessments. They have also found that higher physician self-efficacy translated into higher screening rates. Our results support these findings and suggest that professional societies and medical schools should work to improve physician’s self-efficacy around HIV and sexual risk assessments.

Although some readers may disagree with our definition of compliance; that physicians should “Always/Often” ask each of the eight risk assessment questions included in our survey, several medical organizations (6-10), as well as the federal government(2, 4, 46) have recommended that physicians obtain complete sexual histories of all their patients. In an effort to obtain a complete sexual history and ensure patient-centered care, physicians should be assessing their patients risk of acquiring and transmitting HIV as often as possible, and even more often if a patient is at increased risk of HIV (46, 47) and at least annually (48). Moreover, the CDC has recommended that

physicians make HIV testing a routine part of medical care and test all patients between 13-64 years (3) for HIV.

This study is subject to several limitations. First, information collected from participants is self-reported and some physicians may have responded according to social-desirability. We tried to minimize the likelihood of this bias with the anonymous nature of the participation process. Also, if it was operating, that means the low rates of screening we found are in fact inflated.

Although our self-efficacy measurements had not been validated prior to the study, we received high intra-item reliability for both assessment (Cronbach's $\alpha = .750$) and counseling (Cronbach's $\alpha = .769$) self-efficacy.

Our response rate was similar to the mean response rate among physicians in the published literature found by Asch, Jedrzejewski and Christakis (54%) (1997) (49) and Kasprzyk and colleagues (52%) (2001) (23). With regard to generalizability, if the physicians who responded to our survey were more likely to have seen HIV/AIDS patients in their practice, or placed a high priority on HIV prevention, then again, the degree of compliance scores we are reporting are overestimates. Anecdotally, some "respondents" who returned but did not complete the questionnaire responded that they did not have any HIV/AIDS patients in their practice and thus declined to participate.

2.6 Conclusion

The results of this study indicate that physicians are missing opportunities to counsel and test their patients for HIV. To improve this state of affairs, we recommend efforts to increase physician self-efficacy around sexual health risk assessment for those in training and in practice.

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UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Chapter 3

Manuscript 2

Variation in Primary Care Physicians' HIV Risk Assessment Practice by Patient Type

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PUBLIC HEALTH

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3.1 Abstract

Background: HIV/AIDS has become a pandemic that continues to take millions of lives each year. Since the advent of antiretroviral medication, the incidence of AIDS cases has declined sharply in the U.S. while the prevalence of AIDS continues to increase. Despite increased options for HIV treatment, it has been more than a decade since any research on provider compliance with risk assessment practices has been published. **Methods:** A survey was mailed to a national, random sample of 1400 practicing primary care physicians (i.e., family practice, internal medicine, pediatric medicine and obstetrician-gynecologists). Our dependent variable was defined as the proportion of physicians that “Always/Often” asked eight HIV risk assessment questions of five patient subgroups. **Results:** Physicians reported they were more likely to “Always/Often” ask 7 of 8 HIV risk assessment questions of patients presenting with an STD and least likely to ask these questions among MSM, and IDU patients as compared to the referent group. **Conclusion:** Physicians who see MSM and IDU patients are conducting very limited HIV screening.

3.2 Introduction

HIV/AIDS continues to be spread throughout the U.S. population twenty five years after it was first diagnosed. During these past twenty five years, several national studies (1-5) have been conducted to determine whether physicians are complying with recommendations to assess their patients’ risk for HIV. Unfortunately, the proportion of physicians conducting such assessments has been reported as low (i.e., < 50%) among all groups studied. Such practices may contribute to the large number of HIV seropositive patients who are unaware of their HIV status and their risk of infecting others. It is estimated that 25% of the nearly one million people infected with AIDS are unaware of their infections (6).

The demographics of those being infected have changed since the emergence of HIV in the United States. In the early years of the epidemic (1980’s), the majority of those infected with the disease, in order, were men who have sex with men (MSM), intravenous drug users (IDUs), hemophiliacs, and children who acquired the disease

through perinatal transmission or breast feeding from an infected mother (7). Although HIV still infects MSM disproportionately, the infection rate among heterosexuals is rising (6). Additionally, the proportion of infections occurring in racial/ethnic minority infections has risen (8, 9). Minority disease rates have increased while the incident number of HIV diagnoses in the U.S. population overall has remained steady at 40,000 new cases per year since 1992 (10, 11). Between 2000 and 2003, non-Hispanic, black, heterosexual males were seven times more likely to be infected with HIV than non-Hispanic, white, heterosexual men (12) and three times more likely to be infected with HIV than Hispanic, heterosexual men (12). During the same time frame, non-Hispanic black heterosexual women were 19 times more likely to contract HIV as compared to non-Hispanic, white, heterosexual women.

Since AIDS was first described in 1981 the definition of HIV and AIDS has expanded to include an ever-increasing number of diseases, conditions and test results (13). In the early years of the epidemic most diagnoses of AIDS were followed closely by death, as there were few treatment options. AIDS patients now experience much longer life expectancies since the advent of highly active antiretroviral therapy (HAART) in 1996 (6, 14, 15). In light of these developments, the incidence of AIDS cases has declined sharply (14), while the prevalence of AIDS continues to increase because AIDS mortality is decreasing. Nevertheless, there is still no cure for AIDS, or vaccine against HIV infection.

In an earlier report from this study, we reported that primary care physician's compliance with HIV screening recommendations has not improved substantially since

the previous research conducted on this topic during the epidemic's early years. In this report we compared physician risk assessment practices of four at-risk patient subgroups;

- men who have sex with men (MSM),
- injection drug users (IDUs),
- HIV positive patients, and
- patients with symptoms or diagnosis of an STD to
- continuing adult (≥ 18 years) patients seeking a routine check-up.

3.3 Methods

3.3.1 Sampling Frame & Recruitment

We purchased addresses of 1400 practicing primary care physicians (i.e., general internists, family practice, pediatric medicine and obstetrician-gynecologists) from Medical Marketing Systems, Inc., a vendor of the American Medical Association (AMA) Masterfile. The AMA Masterfile obtains its information on all practicing physicians from all degree granting and credentialing institutions for all doctors of medicine and osteopathic medicine in the United States (16). We queried the database to create a stratified random sample of practicing physicians nation-wide who met the following inclusion criteria; a) spends ≥ 20 hours per week in direct patient care, b) part of a solo practice, group practice, a health maintenance organization or some combination thereof, c) practices medicine outside the U.S. Department of Defense healthcare system (excluding Veterans Affairs), d) lists primary specialties of general internal medicine, family practice, pediatric medicine, or obstetrician-gynecologist, and e) lists an address that does not include a post office box. The sample was stratified so that equal numbers of participant addresses for each specialty were obtained (n=350).

3.3.2 Survey Instrument

The survey instrument was adapted from Bluespruce and colleagues (17) . We added items on patient and provider characteristics that we believed could be associated with risk assessment compliance. Physician characteristics included specialty (i.e., family practice, internal medicine, pediatrician, obstetrician-gynecologist and other), board certification (i.e., Board certified, Not certified), practice setting (i.e., solo, group, hospital, medical school, government, other) where they received their medical degree (i.e., United States, Other), sexual orientation (i.e., heterosexual, homosexual, bisexual), and census region (i.e., Northeast, South, Midwest and West) in which they currently practiced. Five questions relating to religious affiliation and religiosity of the provider, were adapted from Colombotos and colleagues (2). These queried importance of religion in everyday life, whether the respondent considered him/herself to be liberal, moderate or conservative regarding religion and belonged to a church, synagogue or other religious institution. Those who stated “yes” were asked how often they attended religious services and what their religious affiliation was. We asked survey respondents to describe the patients they were likely to encounter in their practice by age, race, ethnicity, and risk group status (i.e., men who have sex with men, injection drug users, HIV positive patients, patients with symptoms or diagnosis of an STD, and continuing adult (\geq 18 years) patients seeking a routine check-up).

3.3.3 *Dependent Variable Measurement*

Physicians were asked whether they assessed the following eight practices, all of which could indicate that their patient was at increased risk of HIV.

- a. Number of sexual partners,
- b. Gender of sexual partners,
- c. Specific sexual practices,
- d. Risk factors of partners that may put [the patient] at increased risk of HIV,
- e. Use of condoms,
- f. History of sexually transmitted diseases,
- g. Injection drug use, and
- h. HIV testing.

Each risk assessment question used Likert scaling with multiple response categories (i.e., 1 = “Never,” 2 = “Rarely,” 3 = “Sometimes,” 4 = “Often” and 5 = “Always”) plus an additional response option of “NA/Not part of my job.” Each physician was asked each risk assessment question for each patient subgroup (described below). Physicians who reported that they had not seen a patient that was a member of one of these five subgroups within the past three months and who cited “NA/Not part of my job” were excluded from data analysis.

Respondents reported their risk assessment practices – over the past 3 months – in relation to the following breakdown of patient subgroups;

1. men who have sex with men,
2. injection drug users,
3. HIV positive patients,

4. patients with symptoms or diagnosis of an STD, and
5. continuing adult (≥ 18 years) patients seeking a routine check-up.

For each patient subgroup and risk assessment question, we calculated the proportion of physicians who answered “Always/Often.”

3.3.4 Survey Distribution

The questionnaire, available upon request, was printed in booklet format. It was distributed in keeping with Dillman’s (1978) “Total Design Approach” (18). Survey packets were initially sent by certified mail, followed by a postcard reminder two weeks later. A duplicate survey packet was sent to non-responders, via First Class mail, four weeks after the first mailing. The fourth mailing consisted of a final postcard reminder and was sent six weeks after the initial mailing. Survey responses were double entered into an SPSS 12.0.1 database to ensure accuracy.

3.3.5 Human Subjects Protection

Institutional Review Board approval was granted by the Uniformed Services University of the Health Sciences before any contact with human subjects was initiated. Questionnaires did not ask responders to provide personally identifying information. They were each marked with a unique number; however, so that early respondents could be excluded from follow-up mailings.

3.3.6 Statistical Analysis

Physicians were asked whether they assessed each of the eight risk assessment questions when examining each of the five patient subgroups. To assess whether the frequency of risk assessment was different for different patient subgroups, methods for

correlated data were used. These methods were used because physicians answered each risk assessment question multiple times (once for each patient subgroup).

A series of McNemar's tests was used to compare the proportion of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients with the proportion of physicians who "Always/Often" asked each risk assessment question for each of the other patient subgroups (i.e., MSM, IDU, HIV+ and STD patients).

Next, kappa was used to assess the extent to which physicians who do (or do not) ask each risk assessment question of their continuing adult patients also do (or do not) ask the risk assessment question in each of the high-risk patient subgroups.

Finally, the chi-square test of equal kappa's was used to assess the extent to which physician characteristics (i.e., specialty, race, census region and gender) modified the agreement between the patient subgroups with respect to the proportion of respondents assessing each risk assessment question.

Analyses were conducted using SPSS 12.0.1 for Windows and SAS 9.1.

3.4 Results

3.4.1 Sample

A total of 1400 survey packets were mailed during the first quarter of 2007. Of these, 70 were returned undeliverable and 42 were returned blank. Of the 649 returned completed surveys, 150 were excluded from our analysis because they were ineligible. Our final study sample was 498 participants, indicating a 48.7% response rate.

Our 498 participants were relatively well distributed by specialty (see Table 1). Respondents were predominately White (77.3%) and male (62.4%). The average age of participants was 48.8 (SD=11.09, Table 1).

Table 1: Select characteristics of study sample.

	n	%
Primary Care Specialty		
Family Practice	135	27.1
Pediatrics	150	30.1
Internal Medicine	106	21.3
Ob-gynecologist	107	21.5
Hours in direct patient care activities		
20-30 hours	69	13.9
31-50 hours	256	51.4
51-80 hours	136	27.3
>80 hours	37	7.4
Board Certified		
Yes	464	93.2
No	33	6.6
Missing/Refused	1	0.2

Practice Setting		
Solo	109	21.9
Group	336	67.5
Hospital	20	4
Medical school	12	2.4
Government (Non DoD)	4	0.8
Other	17	3.4
Country received medical degree		
United States	421	84.5
Other	76	15.3
Missing/Refused	1	0.2
Gender		
Male	312	62.7
Female	186	37.3
Sexual Orientation		
Heterosexual	478	96
Other	15	3
Missing/Refused	5	1
Race		
White	387	77.7
Asian	61	12.2
Black/African-American	21	4.2
Other (American Indian/Alaskan Native & Native Hawaiian/Other Pacific Islander)	5	1.2
Unknown/Not Sure	0	0
Missing/Refused	24	4.8
Ethnicity		
Hispanic or Latino	32	6.4
Not Hispanic or Latino	387	77.7
Unknown/Not Sure	17	3.4
Missing/Refused	62	12.4

Practice Census Region		
Northeast	105	21.1
South	170	34.1
Midwest	123	24.7
West	100	20.1

3.4.2 Risk Assessment Proportions by Patient Subgroup

Responses to risk assessment questions for each of the patient subgroups were collapsed into “Never/Rarely/Sometimes” and “Often/Always” responses (i.e., dichotomized). The proportion of physicians who “Always” or “Often” asked their patients about specific risk practices, by patient subgroup, can be found in Table 2. For example, 37.0% of physicians “Often/Always” asked their continuing adult patients about number of sex partners, 28.6% asked members of the group about the gender of their sexual partners, 19.9% asked them about specific sexual practices, etc.

Table 2: Proportion of physicians responding they “Always/Often” ask about specific risk assessment practices by patient group

	Continuing adult (≥ 18 years) patients seeking a routine check-up (n=370-371)	Men who have sex with men[‡] (n=158-161)	Injection drug users (n=140-141)	HIV positive patients (n=123-128)	Patients with symptoms or diagnosis of an STD (n=386-387)
Question	n (%)	n (%)	n (%)	n (%)	n (%)
Number of sex partners	137 (37.0)	50 (31.6)	50 (35.7)	59 (46.1)	285 (73.8)
Gender of sexual partners	106 (28.6)	50 (31.6)	41 (29.1)	52 (40.9)	197 (50.9)
Specific sexual practices	74 (19.9)	32 (20.0)	38 (27.0)	46 (36.2)	169 (43.8)
Risk factors of partners that may put [patient] at increased risk of HIV	116 (31.3)	55 (34.4)	56 (40.0)	61 (48.4)	237 (61.4)
Use of condoms	216 (58.2)	88 (54.7)	62 (44.3)	76 (60.8)	333 (86.3)
History of sexually transmitted diseases	221 (59.7)	87 (53.7)	75 (53.2)	76 (59.8)	338 (87.3)
Injection drug use	157 (42.4)	75 (46.6)	99 (70.2)	67 (52.8)	177 (45.9)
HIV testing	134 (36.2)	90 (56.3)	93 (66.4)	76 (61.8)	295 (76.4)

[‡]Obstetrician-gynecologists were excluded from analysis as they do not treat male patients

n refers to the number of physicians who reported treating this type of patient in the past three months and answered this question

Table 3 shows the number of physicians answering each risk assessment question for each of the four high risk patient subgroups (n), the percent who asked the risk assessment question of the high risk group only (Labeled “Prev 1” for Prevalence 1) the percent who asked the risk assessment question of the referent group only (Labeled “Prev 2” for Prevalence 2) and the level of agreement (kappa) among physicians who “Always/Often” asked each risk assessment question of the high risk patients and the continuing adult patients (referent group). For example, among the 147 physicians that had seen a male patient who had sex with other men (MSM) in the past three months, 57.8% “Always/Often” asked these patients about HIV testing while only 32.7% of these same physicians “Always/Often” asked their continuing adult patients the same question. The proportions were significantly different from each other ($P < .0001$) indicating that physicians asked this question more of their MSM patients than the referent group.

Kappa assesses the extent to which physician risk assessment practices are consistent across the patient subgroups. For example, agreement will be high if physicians “Always/Often” ask MSM and their continuing adult patients about HIV testing. Similarly, agreement will be high if physicians “Never/Rarely/Sometimes” ask MSM and their continuing adult patients about HIV testing. The kappa statistic among physicians who “Always/Often” asked both MSM and continuing adult patients about HIV testing was low, .290 (95% CI: .158, .422). The strength of agreement of kappa ranges from poor ($< .2$), fair (.21-.40), moderate (.41-.60), good (.61-.80) to very good (.81-1.0) (19). Our results indicate that there was fair agreement among physicians who “Always/Often” asked their MSM patients and the physicians who “Always/Often” asked their continuing adult patients about HIV testing.

Table 3: Number, percent, p and kappa (95% CI) of physicians who “Always/Often” ask their high risk patients each risk assessment question as compared to continuing adult patients (referent group)

Question	Men who have sex with men [†]					Injection Drug Users				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	147	33.3%	33.3%	1.000	.418 (.263, .574)	123	39.0%	35.8%	0.465	.480 (.320, .639)
Gender of sexual partners	145	33.8%	27.6%	0.117	.467 (.314, .621)	123	31.7%	27.6%	0.251	.251 (.481, .781)
Specific sexual practices	147	21.8%	17.0%	0.209	.328 (.143, .513)	123	30.1%	21.1%	0.022	.514 (.345, .684)
Risk factors of partners that may put [the patient] at increased risk of HIV	146	35.6%	31.5%	0.366	.326 (.165, .486)	123	41.5%	34.2%	0.304	.421 (.258, .584)
Use of condoms	147	55.8%	49.0%	0.132	.403 (.256, .549)	123	46.3%	51.2%	0.289	.481 (.327, .635)
History of sexually transmitted diseases	147	53.7%	51.7%	0.602	.550 (.415, .685)	123	53.7%	59.4%	0.194	.522 (.371, .673)
Injection drug use	147	48.3%	48.3%	1.00	.482 (.341, .624)	123	71.5%	52.9%	0.0002	.350 (.195, .505)
HIV testing	147	57.8%	32.7%	<.0001	.290 (.158, .422)	123	66.7%	43.9%	<.0001	.250 (.099, .401)
Question	HIV+ patients					Patients with symptoms or diagnosis of an STD				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	120	49.2%	37.5%	0.016	.431 (.274, .588)	320	76.3%	37.81%	<.0001	.252 (.180, .324)
Gender of sexual partners	119	43.7%	30.3%	0.003	.505 (.352, .658)	320	54.7%	29.1%	<.0001	.375 (.288, .461)
Specific sexual practices	119	38.7%	20.2%	<.0001	.417 (.257, .577)	321	46.7%	20.3%	<.0001	.345 (.258, .433)
Risk factors of partners that may put [the patient] at increased risk of HIV	118	49.2%	39.0%	0.040	.422 (.261, .582)	321	64.1%	33.1%	<.0001	.364 (.285, .442)
Use of condoms	118	61.0%	55.93%	0.317	.374 (.205, .542)	321	62.3%	60.4%	<.0001	.307 (.217, .396)
History of sexually transmitted diseases	119	60.5%	58.0%	0.549	.565 (.415, .716)	320	88.8%	63.8%	<.0001	.285 (.191, .379)
Injection drug use	119	52.9%	49.6%	0.505	.395 (.231, .560)	319	48.9%	43.6%	0.056	.503 (.409, .598)
HIV testing	115	61.7%	47.0%	0.004	.400 (.241, .559)	320	80.0%	39.1%	<.0001	.243 (.176, .310)

[†]Obstetrician-gynecologists were excluded from analysis as they do not treat male patients

n refers to the number of physicians, in the past three months, that reported they had “Always/Often” asked each risk assessment question of their high-risk patients and their continuing adult patients

Prev 1 is the number of physicians who “Always/Often” asked each risk assessment question of their high risk patients

Prev 2 is the number of physicians who “Always/Often” asked each risk assessment question of their continuing adult patients

Kappa is the level of agreement among physicians who “Always/Often” asked each risk assessment question of their high-risk patients and their continuing adult patients

3.4.3 Physician practices by Risk Group

Men who have sex with men. It was only when discussing HIV testing that respondents reported treating MSM differently than our referent group (e.g., continuing adult patients).

Injection drug users. Physicians were more likely to ask about specific sexual practices, injection drug use and HIV testing when interacting with injection drug users versus other continuing adult patients.

HIV positive patients. Physicians reported that they were more likely to ask about number of sex partners, gender of sexual partners, specific sexual practices, partner risk factors and HIV testing among HIV+ patients than they were when dealing with the referent group.

Patients with symptoms or diagnosis of an STD. Respondents were more likely to ask seven of our eight screening questions of this population, as opposed to continuing adult patients in their offices for other reasons. These included number of sexual partners, gender of sexual partners, specific sexual practices, partner risk factors, use of condoms, history of sexually transmitted diseases and HIV testing.

3.4.4 Variations by physician characteristics.

Specialty. Physicians were asked whether they assessed each of the eight risk assessment questions when examining each of the five patient subgroups. Appendix H, Table 1 shows the overall kappa and test of equal kappa (P) after adjusting for physician specialty. For example, physician's consistency in assessing risk assessment practices of men who have sex with men varied by specialty for only two assessment questions: partner risk factors (P=.012) and use of condoms (P=.033).

After reviewing the stratum specific estimates of the physician's specialty for men who have sex with men when asking about partner risk factors and use of condoms, no significant differences in the physician subgroups were observed (Appendix I, Table 2).

Appendix H, Table 5 compares the proportion of physicians, by specialty, who asked each risk assessment question of patients who had symptoms or diagnosis of an STD as compared to the referent patient group. Internal medicine and family practice physicians were each more likely to ask about gender of sexual partners and specific sexual practices with patients who presented with symptoms/diagnosis of an STD.

Gender. Appendix I, Table 1 displays the overall kappa and test of equal kappa (P) after adjusting for physician gender. For example, physician's consistency in assessing risk assessment practices of men who have sex with men varied by gender for only specific sexual practices ($P=.012$)

After reviewing the stratum specific estimates of the physicians gender when asking about specific sexual practices, male physicians were slightly more likely to ask this question of MSM while female physicians were slightly more likely to ask this question of continuing adult patients. However there was no significant difference in either male or female physician subgroups (Appendix I, Table 2).

Appendix I, Table 5 compares the proportion of physicians, by gender, who asked each risk assessment question of patients with symptoms or diagnosis of an STD (versus the referent group). While male and female physicians were similar in asking their patients with symptoms/diagnosis of an STD about the gender of their sexual partners as compared to their continuing adult patients seen for other reasons (55.2% vs. 53.8%

respectively); female physicians were more likely to ask this question of their continuing adult patients than were male physicians (40.3% vs. 22.4%, respectively).

Race. Appendix J, Table 1 displays the overall kappa and test of equal kappa (P) after adjusting for physician race. When we analyzed whether race modified the agreement between the patient subgroups and the proportion of physicians assessing each risk assessment question, no significant interaction emerged.

Census Region. Appendix K, Table 1 presents the overall kappa and test of equal kappa (P) after adjusting for physician census region. For example, physician's consistency in assessing risk assessment practices of men who have sex with men varied by gender for specific sexual practices ($P < .0001$), partner risk factors ($P = .046$) and use of condoms ($P = .044$).

Upon review of the stratum specific estimates among the census region, physicians from the northeast were more likely to ask about the specific sexual practices of their continuing adult patients (26.7%) as compared to the other census regions. Similar results of the census regions were observed when stratum specific estimates for partner risk factors and use of condoms (Appendix K, Table 2) were observed. Again, however; there was no significant difference in the census regions for each of these items.

When we explored the interaction that existed between the census regions and asking HIV+ patients about HIV testing (Appendix K, Table 4), only physicians from the West asked this question more often of this patient type as compared to continuing adult patients (69.0% vs. 31.0%, respectively).

Finally, physicians from all four census regions were more likely to ask about the specific sexual practices of patients with symptoms or diagnosis of an STD (Appendix K, Table 5), than continuing adult patients.

3.5 Discussion

This study expands on earlier research of national physician risk assessment practices in that it examined patterns by patient subgroups. The proportion of physicians who reported asking their patients the questions we studied ranged from a high of 87.3% (i.e., asking patients with STD's/STD symptoms about any prior STD's) to a low of 20.0% (i.e., who reported asking MSM about specific sexual practices). It is quite concerning that fewer than half of the primary care physicians who responded to our survey are asking patients who are at increased risk for HIV infection about their specific sexual practices.

The relatively small sample size available for this high risk sub-analysis might imply that a majority of our respondents had not seen any such patients in their practices over the previous three months. It seems likely; however, that providers tend to assume that their patients are heterosexual, do not inject drugs and are HIV negative. Wider utilization of a standard intake form might yield more valid estimates of a practice's mix of patients (from the perspective of HIV risk). This is unclear; however, since patient concerns about stigmatization or discrimination might hinder their candor. For this reason, one might advise – as the CDC recommends – that all patients between 13 – 64 years be tested for HIV (20). This approach would not be dependent upon physician's subjective perceptions (11).

Readers are reminded; however, that our respondents' low rates of assessment were reported even when they believed they were dealing with patients who belonged to a "known" risk group. So other barriers to adequate assessment must be overcome. Previous research has found that physicians routinely omitted questions about homosexuality and injection/illicit drugs due to discomfort with such topics (4, 21) and such patients (22, 23). Other investigators report that physicians are uncomfortable discussing sexual risk factors with patients generally (24). Nonetheless, it is heartening that physicians do report assessing significant proportions of patients belonging to one high risk group – those with symptoms or diagnosis of an STD.

When individual comparisons of the four patient groups at highest risk for contracting and transmitting HIV were made to the referent group (continuing adult patients) for each of the eight risk assessment questions, physicians "Always/Often" asked the fewest aggregate number of questions of their male patients that have sex with men (1 of 8 questions) and injection drug users (3 of 8 questions). Could this be because physicians relate least to these groups? It certainly seems to contradict objective criteria that might be used to decide who needs assessment.

Our findings suggest that patients who are at highest risk for HIV are not receiving adequate patient care. Physicians cannot tailor their screening and counseling to their patients' HIV risk status if they are not asking the types of questions that would allow them to determine that status. This lack of discussion may explain why at least one quarter of the physicians who responded to our study reported they had not seen even one patient from our high risk groups in the past three months.

What was striking from our results is that Obstetrician-gynecologists infrequently asked their STD patients about the gender of their sexual partners, specific sexual practices and use of condoms. These results stand in contrast to those found in several previous studies (1-3, 21, 25, 26) that indicated obstetrician-gynecologists ask more questions of their patients and generally conduct more thorough risk assessments. Our results indicate that extended sexual history's, although limited, are more likely to be taken by internal medicine and family practice physicians. The difference that we found could be a result of those who completed and returned the questionnaire were more interested in the topic of HIV and at least for family practice physicians saw more high risk patients than any other specialty who fit into the higher risk categories studied.

When we looked at gender, our results, again, were opposite those that have been found previously (25, 27). In our study, female physicians were less likely to ask STD patients about gender of sexual partners, partner risk factors and use of condoms as compared to male physicians. A look at the data suggests that the female physicians studied more frequently asked both their continuing adult and STD patients these questions whereas men only asked these questions more frequently of their STD patients. With these results in mind, we would expect to observe a small ratio of the difference between women questioning their STD and continuing adult patients than we would observe for male physicians.

Finally, we compared physicians from the four census regions. Physicians from the west were much more likely to ask their HIV+ patients about HIV testing as compared to the referent group. Furthermore, physicians from the same census region were nearly four times and physicians from the northeast were nearly three times more

likely to ask their STD patients about specific sexual practices. These results could be due to physicians from these regions treating a higher proportion of HIV+ patients or were more interested in the topic of HIV. After an extensive literature review, we are unable to compare the results of our census region data to that of other studies.

Although our response rate (48.7%) was very near the mean response rate of 52% found by Kasprzyk and colleagues (28) in the published literature (2001), our study suffers from several limitations. If we had either obtained a higher response rate and/or had fewer ineligibles we would have increased our statistical power thus potentially improving our ability to ascertain associations between the demographic factors and patient subgroups if they existed. Furthermore, we would be more confident about our ability to generalize back to the population of primary care providers nationwide. We are encouraged that responders and non-responders were similar by age and gender; however, responders were more likely to be pediatricians ($P=.011$) and only slightly more likely to be from the Midwest ($P=.049$).

Another limitation of this work is that it relies on self-reports, rather than observed or recorded physician-patient interactions. One would think, however, that any bias introduced by this methodological shortcoming indicates that providers are conducting sexual risk assessments even *less* frequently than they have reported. Our results could have been inflated if social desirability was operating on behalf of the responding physicians; however, this is unlikely because the low rates of assessment we found are similar to that described in previous studies (1, 3, 29). Anecdotally, some “respondents” who returned but did not complete the questionnaire responded that they did not have any HIV/AIDS patients in their practice and thus declined to participate.

This might be an indication that those who did respond to our survey placed a high priority on HIV prevention which could thus inflate the actual risk assessment frequency that is actually being conducted by physicians.

3.6 Conclusion

While future studies may improve upon our study procedures, we are still left with the strong impression that physicians are not generally asking important HIV risk assessment questions, even among very high-risk groups of patients. This pattern represents missed opportunities to prevent HIV transmission and treat HIV infection in a timely fashion.

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UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

Chapter 4

Discussion

**HIV Risk Assessment Practices of Primary Care Physicians:
A National Survey**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PUBLIC HEALTH

Submitted by:
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4.1 Discussion

In Chapter 2 we indicated that the majority of primary care physicians are not conducting in-depth risk assessments to determine their patient's risk of HIV infection. Only two of eight risk assessment questions (i.e., history of STDs and use of condoms) were "Always/Often" asked by more than half of our respondents on a routine basis while only 12.5% of physicians asked about the gender of their patients sexual partners. History of STDs was assessed slightly more than that reported in a previous study conducted by the CDC (1) and that found by Bresolin and colleagues (2). The proportion of physicians assessing use of condoms was similar to that found by Boekeloo and colleagues (3). That study team found physicians were more likely to assess for history of STDs (71%) and IV drug use (61%) than we did, however, this may be due to a difference in the wording of questions.

The proportion of physicians asking patients about number of sexual partners was slightly higher in our study than that reported by the CDC (1, 4) and much higher than that reported in two national studies (5, 6). In the CDC study, physicians were asked about patient sexual orientation while in our study physicians were asked about the gender of patient's sexual partners. Our sample reported slightly higher rates of compliance.

To our knowledge, this was the first study that computed a degree of compliance score. The mean degree of compliance among all physicians studied 2.96 (SD=.914), and ranged from "Rarely" to "Sometimes" which suggests that physicians are infrequently conducting "in-depth" risk assessments to determine their patients risk of HIV infection and transmission. We found that use of condoms (3.46), history of STD (3.59) and

injection drug use (3.23) were the most frequently asked questions. Bresolin and Rinaldi (2) also found these to be the most frequently asked questions.

When we performed regression analysis to determine which independent variables were associated with risk assessment practices, ten characteristics emerged from this analysis. Of these, assessment and counseling self-efficacy, physician post-graduate training in HIV risk assessment/counseling, attitude/beliefs (i.e., “Agree/Strongly Agree” that “All patients between the ages of 13-64 should be routinely tested for HIV”) and knowledge could be targeted for change. Provider characteristics (i.e., specialty, sex, race and religious affiliation) are not modifiable, but they indicate subgroups that may need more training and skills development. Furthermore, if physicians were more motivated to take a thorough sexual history, they might explore options for removing perceived barriers to their practice (i.e., lack of staff).

In Chapter 3, we looked at the same eight risk assessment questions as in Chapter 2, but for four “known” high-risk patient groups and compared these groups to continuing adult patients. First we ascertained the proportion of physicians who asked their patients each risk assessment question. This proportion ranged from a high of 87.3% (i.e., asking patients with STD’s/STD symptoms about any prior STD’s) to a low of 20.0% (i.e., who reported asking MSM about specific sexual practices). It is quite concerning that fewer than half of the primary care physicians who responded to our survey are asking patients who are at increased risk for HIV infection about their specific sexual practices.

The relatively small sample size available for this high risk sub-analysis might imply that a majority of our respondents had not seen any such patients in their practices over the previous three months. It seems more likely; however, that providers tend to

assume that their patients are heterosexual, do not use injection drugs and are HIV negative. Wider utilization of a standard intake form might yield more valid estimates of a practice's mix of patients (from the perspective of HIV risk). This is unclear; however, since patient concerns about stigmatization or discrimination might hinder their candor.

Our respondents' low rates of assessment were reported even when they believed they were dealing with patients who belonged to a "known" risk group. So other barriers to adequate assessment must be overcome. Previous research has found that physicians routinely omitted questions about homosexuality and injection/illicit drugs due to discomfort with such topics (6, 7) and such patients (8, 9). Other investigators report that physicians are uncomfortable discussing sexual risk factors with patients generally (10). Nonetheless, it is heartening that physicians do report assessing significant proportions of patients belonging to one high risk group – those with symptoms or diagnosis of an STD.

When individual comparisons of the four patient groups at highest risk for contracting and transmitting HIV were made to the referent group (continuing adult patients) for each of the eight risk assessment questions, physicians "Always/Often" asked the fewest aggregate number of risk assessment questions of their male patients that have sex with men (1 of 8 questions), injection drug users (3 of 8 questions) and HIV+ patients (5 of 8 questions). Could this be because physicians relate least to these groups? It certainly seems to contradict objective criteria that might be used to decide who needs assessment.

Our findings suggest that patients who are at highest risk for HIV are not receiving adequate patient care. Physicians cannot tailor their screening and counseling to their patients' HIV risk status if they are not asking the types of questions that would

allow them to determine that status. This lack of discussion may explain why at least one quarter of the physicians who responded to our study reported they had not seen even one patient from our high risk groups in the past three months.

Since this research was began, the CDC has recommended that all patients between 13 – 64 years be tested for HIV (11). At present, there is thought to be approximately 1 million people living with HIV, and it is estimated that at least 25% of those infected are unaware of their status (12). Utilizing an approach that is not dependent on physician's subjective perceptions of their patient's risk (13, 14) could potentially reduce the number of patients that are unaware of being infected. Additionally, if more physicians adopted universal testing of nearly all their patients, as the CDC recommends (11), this may reduce perceived barriers that prevent physicians from talking to their patients about HIV and other STDs.

As previously mentioned, several of the barriers found in our study can be targeted for change. One such barrier is physician low self-efficacy. Several studies (15-18), have shown that self-efficacy is an integral component of physician ability to perform risk assessments. These studies have also found that higher physician self-efficacy translated into higher screening rates. Our results support these findings and suggest that professional societies and medical schools should work to improve physician's self-efficacy around HIV and sexual risk assessments.

Unfortunately, the likelihood of medical schools increasing physician self-efficacy and knowledge around patient risk assessment is limited by the lack of time spent in medical school addressing sensitive topics such as homosexuality/bisexuality. In a survey of medical schools conducted during the fall of 1996, Tesar and Rovi (19) found

that over half of the medical schools that replied devoted zero hours to this topic. Furthermore, over the entire 4 years of medical school, the mean number of hours spent on this topic was only 2.5 hours with the number of hours decreasing each year of medical school. If this topic is addressed, it is generally addressed during lectures on HIV/AIDS. These results were similar to an earlier study conducted by Wallick, Cambre and Townsend (20) which posited that physicians emerge from medical school without the skills necessary to counsel patients on a broad range of sexual issues, a major component of patient's health. The few hours spent on these sensitive topics is grossly inadequate. Medical schools should increase the number of hours devoted to teaching about sensitive topics such as sexual health and homosexuality. Sexuality is an integral component of nature and physicians should be ready to discuss this topic with their patients.

In light of the lack of medical school instruction on this topic a clinical intervention conducted by Dodge and colleagues (21) increased the rate of physicians who asked their general patients about HIV prevention by 8%. The increase in asking this of their high-risk patients was two to five times higher than the increase in asking about HIV of their low risk patients and these increases were sustained for 9 months. Although physicians did not increase their rate of asking about specific sexual risk behaviors an intervention conducted by Rabin and colleagues (22) of office-based primary care physicians was able to increase physicians risk assessment practices. These increases were not only self-reported but were observed through the use of Evaluators. These results are heartening because they indicate that skills-based training of physicians may increase their self-efficacy thus increasing the likelihood they will conduct in depth

risk assessments which will help identify patients that are at high risk of HIV/AIDS and STD infection and transmission. Additionally, these interventions increased physician knowledge and would fulfill the post-graduate training in HIV risk assessment/counseling which we found were associated with increased risk assessment practices.

As noted earlier, there are several physician characteristics that cannot be changed; however, these groups can and should be targeted with the types of interventions just described to assist with further skill development and education. Through the increase of skills, knowledge and self-efficacy primary care physicians may have less difficulty conducting sexual risk assessments of their patients, particularly those at high-risk for HIV/AIDS and STD infection and transmission.

This study is subject to several limitations. First, information collected from participants is self-reported rather than observed or recorded through physician-patient interactions and some physicians may have responded according to social-desirability. We tried to minimize the likelihood of this bias with the anonymous nature of the participation process. One would think, however, that any bias introduced by this methodological shortcoming indicates that providers are conducting sexual risk assessments even *less* frequently than they have reported. Our results could have been inflated if social desirability was operating on behalf of the responding physicians; however, this is unlikely because the low rates of assessment we found are similar to that described in previous studies (1, 2, 18). Anecdotally, some “respondents” who returned but did not complete the questionnaire responded that they did not have any HIV/AIDS patients in their practice and thus declined to participate. This might be an indication that those who did respond to our survey placed a high priority on HIV prevention which

could thus inflate the actual risk assessment frequency that is actually being conducted by physicians.

Although our self-efficacy measurements had not been validated prior to the study, we received high intra-item reliability for both assessment (Cronbach's $\alpha = .750$) and counseling (Cronbach's $\alpha = .769$) self-efficacy.

Our response rate was similar to the mean response rate among physicians in the published literature found by Asch, Jedrziwski and Christakis (54%) (1997) (23) and Kasprzyk and colleagues (52%) (2001) (24). However, if we had either obtained a higher response rate and/or had fewer ineligible we would have increased our statistical power thus potentially improving our ability to ascertain associations between the demographic factors and patient subgroups if they existed.

4.2 Conclusion

While future studies may improve upon our study procedures, we are still left with the strong impression that physicians are not generally asking important HIV risk assessment questions, even among very high-risk groups of patients. To improve this state of affairs, we recommend efforts to increase physician self-efficacy around sexual health risk assessment for those in training and in practice.

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Appendix A

Questionnaire Cover Letter

Initial Mailing



UNIFORMED SERVICES UNIVERSITY OF THE HEALTH
SCIENCES

4301 JONES BRIDGE ROAD
BETHESDA, MARYLAND 20814-4712
www.usuhs.mil



January 3, 2007

«NAME»
«ADDR1»
«ADDR2»
«CITY», «ST» «ZIP»

Dear Dr. «LNAME»:

As HIV/AIDS nears the third decade since its discovery in 1981, much progress has been made. While our understanding of this disease has increased, our knowledge of primary care physicians' HIV/AIDS assessment practices remains inadequate. We are contacting you in hopes that you will spend ten minutes to help us better understand physician HIV/AIDS assessment practices.

This research will allow us to tailor future educational efforts to physicians' preferences and needs. I am a doctoral student in public health and this research will also generate my doctoral thesis.

Should you choose to participate in this study, your responses will remain anonymous. We have numbered each instrument so that early responders are not burdened with subsequent reminder mailings. As soon as your response has been received, your name and address will be deleted. No attempt will be made to link provider identifiers with survey responses. Included in this mailing is \$5 to "Thank You" for completing the questionnaire.

We plan to publish our aggregate results in a peer reviewed journal, and disseminate aggregate results at a primary care specialty conference.

If you have any questions regarding this research you may contact me at phigh@usuhs.edu, or my Faculty Advisor, Dr. Deborah Girasek, at (301) 295-9775.

Thank you for your assistance.

Sincerely,

Patrick M. High, M.P.H.
Dr. P.H. Candidate
Department of Preventive Medicine & Biometrics

Steven J. Durning, M.D., FACP
Committee Member
Department of Medicine

Enclosures (4)

Appendix B

Physician Questionnaire Instructions

Physician Questionnaire Instructions

Purpose: This survey is designed to determine knowledge, beliefs and behaviors related to HIV prevention & counseling among obstetrician-gynecologists, general internal medicine, family practice and pediatric primary care physicians.

Procedure: Please read the *Participant Statement* at the bottom of the page. If you are willing to participate in this project, please complete the questionnaire and return it in the enclosed envelope within one week.

Risks/discomforts: The risk of participating in this study is minimal (i.e. discomfort or anxiety may be experienced by some individuals when answering questions about their attitudes and beliefs relating to HIV behaviors which put patients at risk). You may choose to skip any question.

Benefits: Your participation will help to determine which factors influence providers in conducting HIV risk assessment & counseling. Results of the survey will be used to examine ways to help providers to talk about HIV prevention in a brief and effective manner.

Other information: Your participation in this survey is voluntary. Should you choose to participate in this study, your responses will remain anonymous. We have numbered each instrument so that early responders are not burdened with subsequent reminder mailings. No attempt will be made to link provider identifiers with survey responses. The coded address list will be maintained on a password protected computer. As soon as your response has been received, your name and address will be deleted. At the end of the data collection period, all non-responders names and addresses will be deleted from the coded address list.

It should take less than ten (10) minutes to complete the questionnaire. Upon completion please return the completed questionnaire in the enclosed, self-addressed, pre-stamped envelope.

Questions: If you have questions about this study you may contact Patrick M. High, MPH, Principal Investigator at phigh@usuhs.edu, or Deborah Girasek, PhD, MPH, Thesis Advisor at (301) 295-9775.

Participant Statement: *I have read the description and, by returning the questionnaire, I indicate my willingness to contribute to this study. I may refuse to answer any question. I also understand that each instrument is numbered and no attempt will be made to link provider identifiers with survey responses.*

Appendix C

Physician Questionnaire

Physician Questionnaire

- 1. Please circle the number that best represents how confident you feel in obtaining information from patients about the following topics when taking a medical history:**

	Not at all Confident	Slightly Confident	Somewhat Confident	Very Confident	Extremely Confident	N/A Not part of my job
a. Smoking	1	2	3	4	5	8
b. Alcohol use	1	2	3	4	5	8
c. Sexual orientation	1	2	3	4	5	8
d. Specific sexual practices	1	2	3	4	5	8

- 2. Please circle the number that indicates how confident you are that your advice will be effective in altering risky sexual behavior for the following types of patients:**

	Not at all Confident	Slightly Confident	Somewhat Confident	Very Confident	Extremely Confident	N/A Not part of my job
a. Adolescents	1	2	3	4	5	8
b. Single heterosexual adults	1	2	3	4	5	8
c. Married heterosexual adults	1	2	3	4	5	8
d. Gay men	1	2	3	4	5	8
e. Married bisexual men	1	2	3	4	5	8
f. Injection drug users	1	2	3	4	5	8

3. Please circle the number that best represents your estimate of a person's risk of acquiring HIV when engaging in each of the following activities with an HIV-positive person:

	High	Moderate	Low	Very Low	No Risk	Don't Know
a. open-mouthed kissing	1	2	3	4	5	8
b. receptive anal intercourse <u>using a condom</u>	1	2	3	4	5	8
c. receptive oral intercourse <u>using a condom</u>	1	2	3	4	5	8
d. vaginal intercourse <u>not using a condom</u>	1	2	3	4	5	8
e. mutual masturbation	1	2	3	4	5	8
f. receptive oral intercourse <u>not using a condom</u>	1	2	3	4	5	8
g. receptive anal intercourse <u>not using a condom</u>	1	2	3	4	5	8
h. providing routine health care services for an HIV-positive person	1	2	3	4	5	8

4. Approximately what percentage of the patients aged 13-64 in YOUR PRACTICE do you test for HIV on a routine basis?

_____ %

5. Please circle the number that indicates how much you agree/disagree with the following statements:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
a. Almost all gay men have high-risk sex.	1	2	3	4	5
b. Most HIV-infected drug users are genuinely concerned about the risk of spreading HIV to other people.	1	2	3	4	5
c. It is difficult to be sympathetic to a patient with AIDS contracted through unprotected sex.	1	2	3	4	5
d. Patients' sexual practices are of little importance to a doctor's understanding of patients' problems.	1	2	3	4	5
e. If more providers counseled their patients about STDs including HIV, rates of infection in the population would decrease.	1	2	3	4	5
f. I believe that counseling patients about HIV prevention has an impact on their behavior.	1	2	3	4	5
g. I become frustrated with my patients who continue to place themselves at high risk for HIV by having unprotected sex.	1	2	3	4	5
h. Repeated messages from providers about reducing HIV risk have a positive impact on patients' behavior.	1	2	3	4	5
i. All patients between the ages of 13-64 should be routinely tested for HIV.	1	2	3	4	5
j. The role of the healthcare provider in helping high-risk people reduce their risk of HIV infection is limited.	1	2	3	4	5
k. I am very concerned about accidentally contracting AIDS from a patient.	1	2	3	4	5
l. I need to know about a patient's specific sexual practices to counsel him/her about HIV prevention.	1	2	3	4	5
m. If I ask married patients about sexual risk behaviors, they will be offended.	1	2	3	4	5

6. Please circle the number which best indicates how much you agree/disagree with the following statements:

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	NA/ Not part of my job
a. I am confident that I get accurate information about sexual behavior from my patients.	1	2	3	4	5	8
b. I have been well trained to take a sexual history.	1	2	3	4	5	8
c. I know how to ask questions to determine my patients' risk for HIV infection.	1	2	3	4	5	8
d. I am confident that I can help patients reduce their risk of HIV infection.	1	2	3	4	5	8
e. I know how to counsel patients about HIV antibody testing.	1	2	3	4	5	8
f. I feel confident in my skills counseling gay men on how to avoid transmitting or acquiring HIV infection.	1	2	3	4	5	8
g. I feel confident in my skills counseling non-monogamous heterosexuals on how to avoid transmitting or acquiring HIV infection.	1	2	3	4	5	8
h. I have the knowledge and skills I need to assess patients' readiness for behavior change.	1	2	3	4	5	8
i. Taking a patient's sexual history makes me feel uncomfortable.	1	2	3	4	5	8
j. I am comfortable asking gay men about sexual practices.	1	2	3	4	5	8
k. I feel comfortable discussing sex with teenage patients.	1	2	3	4	5	8
l. I feel comfortable asking patients about their substance use behavior.	1	2	3	4	5	8

7. In the past 3 months, how often have you asked your patients about the following topics:

	Never 0%	Rarely ≤ 25%	Sometimes ≤ 50%	Often ≤ 75%	Always ≤ 100%	NA/ Not part of my job
a. Number of sexual partners	1	2	3	4	5	8
b. Gender of sexual partners	1	2	3	4	5	8
c. Specific sexual practices	1	2	3	4	5	8
d. Risk factors of partners that may put them at increased risk of HIV	1	2	3	4	5	8
e. Use of condoms	1	2	3	4	5	8
f. History of sexually transmitted diseases	1	2	3	4	5	8
g. Injection drug use	1	2	3	4	5	8
h. HIV testing	1	2	3	4	5	8

8. In the past 3 months, how often have you asked men who have sex with men about the following topics: (If you have not seen this type of patient in the last 3 months, please check “Not Seen” and proceed to next question.)

Not Seen ☐

	Never 0%	Rarely ≤ 25%	Sometimes ≤ 50%	Often ≤ 75%	Always ≤ 100%	NA/ Not part of my job
a. Number of sexual partners	1	2	3	4	5	8
b. Gender of sexual partners	1	2	3	4	5	8
c. Specific sexual practices	1	2	3	4	5	8
d. Risk factors of partners that may put them at increased risk of HIV	1	2	3	4	5	8
e. Use of condoms	1	2	3	4	5	8
f. History of sexually transmitted diseases	1	2	3	4	5	8
g. Injection drug use	1	2	3	4	5	8
h. HIV testing	1	2	3	4	5	8

9. In the past 3 months, how often have you asked injection drug users about the following topics: (If you have not seen this type of patient in the last 3 months, please check “not seen” and proceed to next question.)

Not Seen ☐

	Never 0%	Rarely ≤ 25%	Sometimes ≤ 50%	Often ≤ 75%	Always ≤ 100%	NA/ Not part of my job
a. Number of sexual partners	1	2	3	4	5	8
b. Gender of sexual partners	1	2	3	4	5	8
c. Specific sexual practices	1	2	3	4	5	8
d. Risk factors of partners that may put them at increased risk of HIV	1	2	3	4	5	8
e. Use of condoms	1	2	3	4	5	8
f. History of sexually transmitted diseases	1	2	3	4	5	8
g. Injection drug use	1	2	3	4	5	8
h. HIV testing	1	2	3	4	5	8

10. In the past 3 months, how often have you asked HIV positive patients about the following topics: (If you have not seen this type of patient in the last 3 months, please check “Not Seen” and proceed to next question.)

Not Seen ☐

	Never 0%	Rarely ≤ 25%	Sometimes ≤ 50%	Often ≤ 75%	Always ≤ 100%	NA/ Not part of my job
a. Number of sexual partners	1	2	3	4	5	8
b. Gender of sexual partners	1	2	3	4	5	8
c. Specific sexual practices	1	2	3	4	5	8
d. Risk factors of partners that may put them at increased risk of HIV	1	2	3	4	5	8
e. Use of condoms	1	2	3	4	5	8
f. History of sexually transmitted diseases	1	2	3	4	5	8
g. Injection drug use	1	2	3	4	5	8
h. HIV testing	1	2	3	4	5	8

11. In the past 3 months, how often have you asked patients with symptoms or diagnosis of an STD about the following topics: (If you have not seen this type of patient in the last 3 months, please check “Not Seen” and proceed to next question.)

Not Seen ☐

	Never 0%	Rarely ≤ 25%	Sometimes ≤ 50%	Often ≤ 75%	Always ≤ 100%	NA/ Not part of my job
a. Number of sexual partners	1	2	3	4	5	8
b. Gender of sexual partners	1	2	3	4	5	8
c. Specific sexual practices	1	2	3	4	5	8
d. Risk factors of partners that may put them at increased risk of HIV	1	2	3	4	5	8
e. Use of condoms	1	2	3	4	5	8
f. History of sexually transmitted diseases	1	2	3	4	5	8
g. Injection drug use	1	2	3	4	5	8
h. HIV testing	1	2	3	4	5	8

12. In the past 3 months, how often have you asked continuing adult (≥ 18 years) patients seeking a routine check-up about the following topics: (If you have not seen this type of patient in the last 3 months, please check “Not Seen” and proceed to next question.)

	Not Seen <input type="checkbox"/>					
	Never	Rarely	Sometimes	Often	Always	NA/ Not part of my job
	0%	$\leq 25\%$	$\leq 50\%$	$\leq 75\%$	$\leq 100\%$	
a. Number of sexual partners	1	2	3	4	5	8
b. Gender of sexual partners	1	2	3	4	5	8
c. Specific sexual practices	1	2	3	4	5	8
d. Risk factors of partners that may put them at increased risk of HIV	1	2	3	4	5	8
e. Use of condoms	1	2	3	4	5	8
f. History of sexually transmitted diseases	1	2	3	4	5	8
g. Injection drug use	1	2	3	4	5	8
h. HIV testing	1	2	3	4	5	8

- 13. The following question lists reasons why primary care providers might not talk to "at-risk" patients about reducing the risk of HIV. Please circle the number that best indicates how important each of these reasons is when you DO NOT counsel patients.**

	Not at all Important	Slightly Important	Somewhat Important	Very Important	Extremely Important	NA/Not part of my job
a. Not enough time	1	2	3	4	5	8
b. Other medical issues take precedence	1	2	3	4	5	8
c. Patients are not comfortable discussing sexual behaviors	1	2	3	4	5	8
d. I don't have enough staff on my team to support me	1	2	3	4	5	8
e. Have not established sufficient rapport with patient	1	2	3	4	5	8

- 14. How many known HIV+/non-AIDS patients have you cared for in the last year?**

☐ None
 ☐ 1
 ☐ 2-5
 ☐ 6-10
 ☐ 11-19
 ☐ 20-29
 ☐ 30-39
 ☐ 40-49
 ☐ ≥ 50

- 15. How many known HIV+/non-AIDS patients have you ever cared for?**

☐ None
 ☐ 1
 ☐ 2-5
 ☐ 6-10
 ☐ 11-19
 ☐ 20-29
 ☐ 30-39
 ☐ 40-49
 ☐ ≥ 50

- 16. How many AIDS patients have you cared for in the last year?**

☐ None
 ☐ 1
 ☐ 2-5
 ☐ 6-10
 ☐ 11-19
 ☐ 20-29
 ☐ 30-39
 ☐ 40-49
 ☐ ≥ 50

- 17. How many AIDS patients have you ever cared for?**

☐ None
 ☐ 1
 ☐ 2-5
 ☐ 6-10
 ☐ 11-19
 ☐ 20-29
 ☐ 30-39
 ☐ 40-49
 ☐ ≥ 50

Demographic information about your patients

18. Please estimate the percentage of the following types of patients in your practice?

	< 10%	10-24%	25-49%	50-74%	≥ 75%	None	Don't Know/Don't Ask
a. men who have sex with men	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. injection drug users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. men who have sex with men and inject drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. HIV + patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Married patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Divorced patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Single patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Lesbian women	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Please estimate the percentage of the patients in your practice by race?

	< 10%	10-24%	25-49%	50-74%	≥ 75%
a. American Indian/Alaskan Native	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Asian	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Native Hawaiian or Other Pacific Islander	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Black/African-American (Not Hispanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. White (Not Hispanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Please estimate the percentage of patients in your practice by age?

	%	NA
a. 10-14 years	_____	<input type="checkbox"/>
b. 15-20 years	_____	<input type="checkbox"/>
c. 21-24 years	_____	<input type="checkbox"/>
d. 25-34 years	_____	<input type="checkbox"/>
e. 35-44 years	_____	<input type="checkbox"/>
f. 45-54 years	_____	<input type="checkbox"/>
g. 55-65 years	_____	<input type="checkbox"/>
h. ≥ 66 years	_____	<input type="checkbox"/>

Your demographic information**21. In what year did you complete residency?**

22. Have you received post-graduate training in HIV risk assessment/counseling in the last 12 months/ever?

	Last 12 mos.	Ever
Grand Rounds	<input type="checkbox"/>	<input type="checkbox"/>
CME/CE Courses	<input type="checkbox"/>	<input type="checkbox"/>
Videos	<input type="checkbox"/>	<input type="checkbox"/>
Workshops	<input type="checkbox"/>	<input type="checkbox"/>
Role playing	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify)	<input type="checkbox"/>	<input type="checkbox"/>

None	<input type="checkbox"/>	<input type="checkbox"/>

23. What is your specialty?

- ☐ Family Practice
- ☐ Pediatrics
- ☐ Internal Medicine
- ☐ Obstetrician-gynecologist
- ☐ Other (Please specify) _____

24. Do you currently practice medicine in your specialty?

- ☐ Yes
- ☐ No

25. How many hours per week do you spend in direct patient care activities?

- | | | | | | |
|-------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|
| <input type="checkbox"/> < 10 | <input type="checkbox"/> 10-19 | <input type="checkbox"/> 20-30 | <input type="checkbox"/> 31-50 | <input type="checkbox"/> 51-80 | <input type="checkbox"/> > 80 |
| hours | hours | hours | hours | hours | hours |

26. Are you currently board certified in your specialty?

- ☐ Board Certified
- ☐ Not Certified

27. In what type of setting do you currently practice?

- ☐ Solo practice
- ☐ Group practice
- ☐ Hospital
- ☐ Medical School
- ☐ Government
- ☐ Other (Please specify) _____

28. In what country did you receive your medical degree?

- ☐ United States
- ☐ Other

29. What is your gender?

- ☐ Male
- ☐ Female

30. What is your sexual orientation?

- ☐ Heterosexual
- ☐ Homosexual
- ☐ Bisexual

31. What was your age at your last birthday?

____ _ years

32. What is your race? (Mark all that apply.)

American Indian/Alaskan Native	<input type="checkbox"/>
Asian	<input type="checkbox"/>
Native Hawaiian or Other Pacific Islander	<input type="checkbox"/>
Black/African-American (Not Hispanic)	<input type="checkbox"/>
White (Not Hispanic)	<input type="checkbox"/>
Unknown/Not Sure	<input type="checkbox"/>

33. What is your ethnicity?

Hispanic or Latino	<input type="checkbox"/>
Not Hispanic or Latino	<input type="checkbox"/>
Unknown/Not Sure	<input type="checkbox"/>

34. In what census region of the U.S. do you currently practice?**Northeast**☐

(States include; Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York & Pennsylvania)

South☐

(States include; Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma & Texas)

Midwest☐

(States include; Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kansas, Nebraska, Minnesota, North Dakota, South Dakota, Missouri)

West☐

(States include; Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming, Alaska, California, Hawaii, Oregon, Washington)

35. How important is religion in your everyday life? Is it...

- ☐ very important
- ☐ fairly important
- ☐ not too important
- ☐ not at all important

36. In your religious thinking, do you consider yourself to be...

- ☐ liberal
- ☐ moderate
- ☐ conservative

37. Do you belong to, or are you a member of a church, synagogue or other religious institution?

- ☐ Yes —————→
- ☐ No

37a. How often do you attend religious services?

- ☐ Once a week or more
- ☐ Two to three times a month
- ☐ Several times a year or less
- ☐ Never

37b. Currently, what is your religious affiliation?

- ☐ Protestant
- ☐ Roman Catholic
- ☐ Jewish
- ☐ Hindu
- ☐ Muslim
- ☐ Other

38. Do you currently practice medicine in the U.S. Department of Defense health care system (i.e. care of active duty patients and/or their dependents; does not include VA)?

- ☐ Yes
- ☐ No

ID # _____

Thank you very much for your participation.
Please feel free to add any additional comments on the next page.

Please use the space below if you have additional
comments.



Appendix D

Physician Postcards

Follow-up reminder 1

Uniformed Services University
4301 Jones Bridge Road
Bethesda, Maryland 20814-4712

OFFICIAL BUSINESS

Uniformed Services University
4301 Jones Bridge Road
Bethesda, Maryland 20814-4712

OFFICIAL BUSINESS

January 17, 2007

Dear Physician,

This is a friendly reminder that two weeks ago you received a questionnaire titled, "Physician Questionnaire" from the Uniformed Services University via certified mail. If you have not done so already, please take ten minutes from your schedule to help us in our research to better understand primary care physicians' HIV/AIDS assessment practices.

If you have already returned your questionnaire, on behalf of the study team, I would personally like to say "Thank You."

Sincerely,

Patrick M. High
Dr. P.H. Candidate
Department of Preventive Medicine and Biometrics

January 17, 2007

Dear Physician,

This is a friendly reminder that two weeks ago you received a questionnaire titled, "Physician Questionnaire" from the Uniformed Services University via certified mail. If you have not done so already, please take ten minutes from your schedule to help us in our research to better understand primary care physicians' HIV/AIDS assessment practices.

If you have already returned your questionnaire, on behalf of the study team, I would personally like to say "Thank You."

Sincerely,

Patrick M. High
Dr. P.H. Candidate
Department of Preventive Medicine and Biometrics

Appendix E

Questionnaire Cover Letter

**Non-respondent
Follow-up Mailing**



UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

4301 JONES BRIDGE ROAD
BETHESDA, MARYLAND 20814-4712
www.usuhs.mil



31 January 2007

«NAME»
«ADDR1»
«ADDR2»
«CITY», «ST» «ZIP»

Dear Dr. «LNAME»:

Approximately four weeks ago you received a questionnaire titled, "Physician Questionnaire." If you have not already returned the questionnaire please take ten minutes to fill out the enclosed questionnaire of the same title and return it in the enclosed envelope. If you have already submitted the questionnaire, "Thank You" and my apologies for this reminder.

As HIV/AIDS nears the third decade since its discovery in 1981, much progress has been made. While our understanding of this disease has increased, our knowledge of primary care physicians' HIV/AIDS assessment practices remains inadequate. We are contacting you in hopes that you will spend ten minutes to help us better understand physician HIV/AIDS assessment practices.

This research will allow us to tailor future educational efforts to physicians' preferences and needs. I am a doctoral student in public health and this research will also generate my doctoral thesis.

Should you choose to participate in this study, your responses will remain confidential. No attempt will be made to link provider identifiers with survey responses. We have numbered each instrument so that early responders are not burdened with subsequent reminder mailings. As soon as your response has been received, your name and address will be deleted.

We plan to publish our aggregate results in a peer reviewed journal, and disseminate aggregate results at a primary care specialty conference.

If you have any questions regarding this research you may contact me at phigh@usuhs.edu, or my Faculty Advisor, Dr. Deborah Girasek, at (301) 295-9775.

Thank you for your assistance.

Sincerely,

Patrick M. High, M.P.H.
Dr. P.H. Candidate
Department of Preventive Medicine & Biometrics

Steven J. Durning, M.D., FACP
Committee Member
Department of Medicine

Enclosures (3)

Appendix F

Physician Postcards

Follow-up reminder 2

Uniformed Services University
4301 Jones Bridge Road
Bethesda, Maryland 20814-4712

OFFICIAL BUSINESS

Uniformed Services University
4301 Jones Bridge Road
Bethesda, Maryland 20814-4712

OFFICIAL BUSINESS

February 14, 2007

Dear Physician,

This is a friendly reminder that two weeks ago you received a questionnaire titled, "Physician Questionnaire" from the Uniformed Services University. If you have not done so already, please take ten minutes from your schedule to help us in our research to better understand primary care physicians' HIV/AIDS assessment practices.

If you have already returned your questionnaire, on behalf of the study team, I would personally like to say "Thank You."

Sincerely,

Patrick M. High, MPH
Dr. P.H. Candidate
Department of Preventive Medicine and Biometrics

February 14, 2007

Dear Physician,

This is a friendly reminder that two weeks ago you received a questionnaire titled, "Physician Questionnaire" from the Uniformed Services University. If you have not done so already, please take ten minutes from your schedule to help us in our research to better understand primary care physicians' HIV/AIDS assessment practices.

If you have already returned your questionnaire, on behalf of the study team, I would personally like to say "Thank You."

Sincerely,

Patrick M. High, MPH
Dr. P.H. Candidate
Department of Preventive Medicine and Biometrics

Appendix G

Univariate & Multivariate analysis

Table 1: Unadjusted (bivariate) and multivariate analysis among physician characteristics and mean risk assessment compliance.

Table 2: Unadjusted (bivariate) and multivariate analysis among the physician knowledge questions and mean risk assessment compliance.

Table 3: Unadjusted (bivariate) and multivariate analysis among mean physician assessment and counseling self-efficacy and mean risk assessment compliance.

Table 4: Unadjusted (bivariate) and multivariate analysis among mean physician outcome expectations and mean risk assessment compliance.

Table 5: Unadjusted (bivariate) and multivariate analysis among physician attitudes and beliefs and mean risk assessment compliance.

Table 6: Unadjusted (bivariate) and multivariate analysis among physician practice barriers and mean risk assessment compliance.

Table 1: Unadjusted (bivariate) and multivariate analysis among physician characteristics and mean risk assessment compliance.

	Unadjusted (Bivariate)		Adjusted (Multivariate)	
	Unstand. B	P- value*	Unstand. B	P- value*
Have you received post graduate training in HIV risk assessment/counseling in the last 12 months/ever?				
None	Ref.		Ref.	
Last 12 mos.	0.758	0.000	0.622	0.000
Ever	0.377	0.001	0.312	0.002
Missing/Refused	0.671	0.005	0.727	0.001
What is your specialty?				
Obstetrician-gynecologist	Ref.		Ref.	
Family Practice	-0.617	0.000	-0.531	0.000
Pediatrics	-0.836	0.000	-0.821	0.000
Internal Medicine	-0.772	0.000	-0.702	0.000
Are you currently board certified in your specialty?				
Board certified	Ref.		Ref.	
Not certified	0.020	0.906	0.015	0.924
Missing/Refused	-0.213	0.816	-0.606	0.467
Sex				
Female	Ref.		Ref.	
Male	-0.383	0.000	-0.296	0.000
What is your sexual orientation?				
Heterosexual	Ref.		Ref.	
Other	-0.017	0.947	-0.070	0.749
Missing/Refused	0.112	0.786	0.095	0.800
Age	-0.009	0.013	-0.009	0.019

Race				
White	Ref		Ref	
American Indian/Alaskan Native				
Native Hawaiian/Other Pacific Islander	0.538	0.149	0.818	0.029
Asian	-0.037	0.765	-0.042	0.730
Black/African-American	0.659	0.002	0.674	0.000
Unknown/Not Sure*	**	**	**	**
Missing/Refused	-0.129	0.500	-0.116	0.561
Ethnicity				
Not Hispanic or Latino	Ref.		Ref.	
Hispanic or Latino	0.005	0.979	0.131	0.438
Unknown/Not Sure	0.002	0.988	-0.010	0.933
Missing/Refused	0.224	0.338	0.209	0.347
In what census region of the U.S. do you currently practice?				
Northeast	Ref.		Ref.	
South	-0.259	0.023	-0.196	0.059
Midwest	-0.204	0.094	-0.167	0.130
West	-0.228	0.076	-0.194	0.095
How important is religion in your everyday life?				
very important	Ref.		Ref.	
fairly important	-0.022	0.826	-0.139	0.151
not too important	0.098	0.423	-0.017	0.888
not at all important	-0.057	0.656	-0.208	0.150
Missing/Refused	0.341	0.411	0.245	0.572
In your religious thinking do you consider yourself to be...				
liberal	Ref.		Ref.	
moderate	-0.060	0.528	-0.047	0.626
conservative	-0.322	0.003	-0.316	0.007
Missing/Refused	-0.183	0.497	-0.096	0.730

Currently, what is your religious affiliation?				
Protestant	Ref.		Ref.	
Roman Catholic	0.269	0.021	0.184	0.090
Jewish	0.492	0.001	0.423	0.004
Hindu/Muslim/Other	0.417	0.006	0.277	0.054
Missing/Refused	0.227	0.034	0.160	0.141

*Bolding represents significant association exists ($P < .05$) between variable and degree of compliance score.

**Missing correlation. Deleted from analysis.

Table 2: Unadjusted (bivariate) and multivariate analysis among physician knowledge and mean risk assessment compliance.

	Unadjusted (Bivariate)		Multivariate	
	Unstand. B	P- value*	Unstand. B	P-value*
Please estimate a person's risk of acquiring HIV when engaging in vaginal intercourse not using a condom with an HIV-positive person.				
Not knowledgeable (Mod/Low/Very Low/ No Risk & Don't Know)	Ref.		Ref.	
Knowledgeable (High)	0.058	0.489	-0.014	0.873
Missing/Refused	-0.422	0.265	-1.763	0.007
Please estimate a person's risk of acquiring HIV when engaging in receptive anal intercourse not using a condom with an HIV-positive person.				
Not knowledgeable (Mod/Low/Very Low/ No Risk & Don't Know)	Ref.		Ref.	
Knowledgeable (High)	0.249	0.036	0.262	0.039
Missing/Refused	0.398	0.397	2.104	0.016
Please estimate a person's risk of acquiring HIV when providing routine health care services for HIV-positive person.				
Not knowledgeable (High/Mod/No Risk & Don't Know)	Ref.		Ref.	
Knowledgeable (Low/Very Low)	0.078	0.351	0.074	0.375
Missing/Refused	0.143	0.612	0.091	0.794

*Bolding represents significant association exists ($P < .05$) between variable and degree of compliance score.

Table 3: Unadjusted (bivariate) and multivariate analysis among mean physician assessment and counseling self-efficacy and mean risk assessment compliance.

	Unadjusted (Bivariate)		Multivariate	
	Unstand. B	P- value*	Unstand. B	P- value*
Assessment Self-Efficacy	0.909	0.000	0.645	0.000
Counseling Self-Efficacy	0.689	0.000	0.354	0.000

*Bolding represents significant association exists ($P < .05$) between variable and degree of compliance score.

Table 4: Unadjusted (bivariate) and multivariate analysis among mean physician outcome expectations and mean risk assessment compliance.

	Unadjusted (Bivariate)		Multivariate	
	Unstand. B	P- value	Unstand. B	P- value
Mean Outcome Expectations	0.218	0.000	0.218	0.000

*Bolding represents significant association exists ($P < .05$) between variable and degree of compliance score.

Table 5: Unadjusted (bivariate) and multivariate analysis among physician attitudes and beliefs and mean risk assessment compliance.

	Unadjusted (Bivariate)		Multivariate	
	Unstand. B	P- value*	Unstand. B	P- value*
Agreement/disagreement with the following statement: Almost all gay men have high-risk sex.				
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref		Ref	
Agree/Strongly Agree	-0.035	0.686	-0.057	0.503
Missing/Refused	0.297	0.519	0.224	0.778
Agreement/disagreement with the following statement: Most HIV-infected drug users are genuinely concerned about the risk of spreading HIV to other people.				
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref		Ref	
Agree/Strongly Agree	-0.041	0.684	-0.047	0.630
Missing/Refused	0.490	0.287	0.974	0.220
Agreement/disagreement with the following statement: It is difficult to be sympathetic to a patient with AIDS contracted through unprotected sex.				
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref		Ref	
Agree/Strongly Agree	0.164	0.373	Collinear	
Missing/Refused	0.576	0.376	Collinear	

Agreement/disagreement with the following statement: Patient's sexual practices are of little importance to a doctor's understanding of patient's problems.				
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.		Ref.	
Agree/Strongly Agree	-0.260	0.278	Collinear	
Missing/Refused	0.559	0.290	Collinear	
Agreement/disagreement with the following statement: I become frustrated with my patients who continue to place themselves at high risk for HIV by having unprotected sex.				
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.		Ref.	
Agree/Strongly Agree	0.085	0.331	0.081	0.336
Missing/Refused	0.006	0.984	-0.132	0.736
Agreement/disagreement with the following statement: All patients between the ages of 13-64 should be routinely tested for HIV.				
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.		Ref.	
Agree/Strongly Agree	0.327	0.000	0.484	0.000
Missing/Refused	-1.147	0.084	-1.138	0.152
Agreement/disagreement with the following statement: The role of the healthcare provider in helping high-risk people reduce their risk of HIV infection is limited.				
Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.		Ref.	
Agree/Strongly Agree	-0.433	0.000	-0.451	0.000
Missing/Refused	-0.092	0.838	-0.813	0.307

Agreement/disagreement with the following statement: **I am very concerned about accidentally contracting AIDS from a patient.**

Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.		Ref.
Agree/Strongly Agree	0.072	0.553	Collinear
Missing/Refused	0.577	0.276	Collinear

Agreement/disagreement with the following statement: **I need to know about a patient's specific sexual practices to counsel him/her about HIV prevention.**

Strongly Disagree/Disagree/Neither Agree or Disagree	Ref.		Ref.	
Agree/Strongly Agree	0.120	0.150	0.110	0.173
Missing/Refused	0.622	0.176	1.351	0.090

*Bolding represents significant association exists ($P < .05$) between variable and degree of compliance score.

Collinear, variance inflation factor (VIF) > 10 and excluded from analysis.

Table 6: Unadjusted (bivariate) and multivariate analysis among physician practice barriers and mean risk assessment compliance.

	Unadjusted (Bivariate)		Multivariate	
	Unstand. B	P- value*	Unstand. B	P- value*
Importance of why you do not talk to "at-risk" patients; Not enough time.				
Not at all/Slightly/Somewhat Important	Ref.		Ref.	
Very/Extremely Important	-0.022	0.803	0.035	0.708
NA/Not part of my job	-0.107	0.776	0.158	0.814
Missing/Refused	-0.069	0.769	0.750	0.158
Importance of why you do not talk to "at-risk" patients; Other medical issues take precedence.				
Not at all/Slightly/Somewhat Important	Ref.		Ref.	
Very/Extremely Important	-0.016	0.858	Collinear	
NA/Not part of my job	0.109	0.792	Collinear	
Missing/Refused	-0.377	0.153	Collinear	
Importance of why you do not talk to "at-risk" patients; Patients are not comfortable discussing sexual behaviors				
Not at all/Slightly/Somewhat Important	Ref.		Ref.	
Very/Extremely Important	-0.265	0.006	Collinear	
NA/Not part of my job	0.053	0.896	Collinear	
Missing/Refused	-0.27	0.275	Collinear	

Importance of why you do not talk to "at-risk" patients; I don't have enough staff on my team to support me				
Not at all/Slightly/Somewhat Important	Ref.			
Very/Extremely Important	-0.262	0.015	-0.269	0.022
NA/Not part of my job	-0.569	0.026	-0.829	0.017
Missing/Refused	-0.35	0.131	-1.00	0.060
Importance of why you do not talk to "at-risk" patients; Have not established sufficient rapport with patient.				
Not at all/Slightly/Somewhat Important	Ref.		Ref.	
Very/Extremely Important	-0.063	0.526	-0.012	0.906
NA/Not part of my job	-0.202	0.592	0.452	0.549
Missing/Refused	-0.19	0.417	0.009	0.986

*Bolding represents significant association exists ($P < .05$) between variable and degree of compliance score..

Collinear, VIF>10 and excluded from analysis.

Appendix H

Adjusting for physician specialty

Table 1: Kappa (95% CI) and test of equal kappa (P), adjusting for physician specialty

Table 2: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of men who have sex with men, by physician specialty

Table 3: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of injection drug users, by physician specialty

Table 4: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of HIV+ patients, by physician specialty

Table 5: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of patients with symptoms or diagnosis of an STD, by physician specialty

Table 1: Kappa (95% CI) and test of equal kappa (P), adjusting by physician specialty

Question	Men who have sex with men [‡]		Injection Drug Users		HIV+ patients		Patients with symptoms or diagnosis of an STD	
	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P
Number of sex partners	.413 (.256, .571)	0.223	.443 (.275, .610)	0.876	.417 (.266, .568)	0.423	.239 (.169, .309)	0.183
Gender of sexual partners	.469 (.313, .624)	0.252	.642 (.494, .790)	0.212	.504 (.355, .652)	0.978	.368 (.290, .445)	0.0004
Specific sexual practices	.283 (.101, .464)	0.354	.470 (.292, .648)	0.754	.403 (.250, .556)	0.886	.330 (.246, .414)	0.037
Risk factors of partners that may put [the patient] at increased risk of HIV	.340 (.185, .495)	0.012	.400 (.233, .567)	0.309	.369 (.199, .540)	0.893	.364 (.286, .443)	0.090
Use of condoms	.386 (.234, .538)	0.033	.448 (.291, .605)	0.397	.346 (.184, .507)	0.992	.291 (.206, .376)	0.015
History of sexually transmitted diseases	.580 (.448, .712)	0.386	.442 (.288, .596)	0.148	.527 (.368, .685)	0.990	.248 (.158, .337)	0.136
Injection drug use	.477 (.335, .618)	0.918	.323 (.166, .479)	0.387	.418 (.259, .577)	0.299	.517 (.424, .609)	0.201
HIV testing	.315 (.191, .438)	0.097	.197 (.055, .338)	0.774	.375 (.222, .527)	0.497	.224 (.158, .290)	0.691

[‡]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

P is the p-value for the test of equal kappa's, adjusting for physician specialty

Table 2: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of men who have sex with men (MSM)[‡], by physician specialty

Question	Family Practice					Pediatrics				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	70	40.0%	32.9%	0.297	.295 (.067, .522)	13	53.9%	69.2%	0.157	.683 (.300, 1.00)
Gender of sexual partners	68	38.2%	26.5%	0.074	.339 (.111, .566)	13	53.9%	53.9%	1.000	.691 (.296, 1.00)
Specific sexual practices	70	24.3%	12.9%	0.059	.168 (-.084, .420)	13	38.5%	46.2%	0.564	.530 (.071, .990)
Risk factors of partners that may put [the patient] at increased risk of HIV	70	40.0%	27.1%	0.095	.088 (-.140, .316)	12	66.7%	58.3%	0.564	.471 (-.035, .976)
Use of condoms	70	57.1%	45.7%	0.131	.210 (-.013, .432)	13	76.9%	76.9%	-	1.00
History of sexually transmitted diseases	70	54.3%	44.3%	0.090	.519 (.324, .714)	13	69.2%	76.9%	0.317	.806 (.448, 1.00)
Injection drug use	70	50.0%	45.7%	0.491	.457 (.250, .665)	13	30.8%	53.9%	0.083	.552 (.154, .949)
HIV testing	70	61.4%	27.1%	<.0001	.224 (.054, .394)	13	46.2%	46.2%	1.000	.691 (.296, 1.00)

Question	Internal Medicine					Obstetrician/Gynecologist				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	61	21.3%	25.0%	0.333	.445 (.180, .709)	-	-	-	-	-
Gender of sexual partners	61	24.6%	21.3%	0.527	.537 (.286, .789)	-	-	-	-	-
Specific sexual practices	61	14.8%	14.8%	1.000	.348 (.029, .668)	-	-	-	-	-
Risk factors of partners that may put [the patient] at increased risk of HIV	61	24.6%	27.9%	0.527	.577 (.344, .810)	-	-	-	-	-
Use of condoms	61	50.8%	44.3%	0.285	.542 (.333, .751)	-	-	-	-	-
History of sexually transmitted diseases	61	50.8%	52.5%	0.782	.573 (.368, .779)	-	-	-	-	-
Injection drug use	61	50.8%	50.8%	1.000	.475 (.254, .696)	-	-	-	-	-
HIV testing	61	57.4%	32.8%	0.001	.345 (.142, .547)	-	-	-	-	-

[‡]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their MSM patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Table 3: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of injection drug users, by physician specialty

Question	Family Practice					Pediatrics				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	49	42.9%	34.7%	0.285	.402 (.145, .660)	5	40.0%	40.0%	-	1.00
Gender of sexual partners	49	32.7%	24.5%	0.157	.603 (.360, .847)	5	40.0%	40.0%	-	1.00
Specific sexual practices	49	30.6%	16.3%	0.035	.392 (.114, .671)	5	40.0%	40.0%	-	1.00
Risk factors of partners that may put [the patient] at increased risk of HIV	49	42.9%	32.7%	0.132	.528 (.289, .766)	5	40.0%	40.0%	-	1.00
Use of condoms	49	53.1%	44.9%	0.317	.351 (.093, .609)	5	40.0%	40.0%	-	1.00
History of sexually transmitted diseases	49	55.1%	46.9%	0.248	.513 (.277, .750)	5	40.0%	40.0%	-	1.00
Injection drug use	49	73.5%	49.0%	0.005	.272 (.038, .507)	5	40.0%	40.0%	-	1.00
HIV testing	49	67.4%	28.6%	<.0001	.183 (-.006, .372)	5	40.0%	40.0%	-	1.00

Question	Internal Medicine					Obstetrician/Gynecologist				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	41	29.3%	24.4%	0.480	.505 (.209, .801)	28	46.4%	53.6%	0.480	.432 (.102, .761)
Gender of sexual partners	41	26.8%	17.1%	0.157	.438 (.120, .757)	28	35.7%	46.4%	0.083	.642 (.494, .790)
Specific sexual practices	41	22.0%	12.2%	0.103	.492 (.153, .831)	28	39.3%	39.3%	1.00	.551 (.234, .868)
Risk factors of partners that may put [the patient] at increased risk of HIV	41	31.7%	31.7%	1.000	.324 (.017, .632)	28	53.6%	50.0%	0.763	.214 (-.147, .575)
Use of condoms	41	31.7%	41.5%	0.157	.584 (.332, .836)	28	57.1%	78.6%	0.034	.378 (.060, .696)
History of sexually transmitted diseases	41	39.0%	53.7%	0.058	.520 (.272, .768)	28	75.0%	92.9%	0.059	.125 (-.228, .478)
Injection drug use	41	75.6%	61.0%	0.109	.231 (-.064, .525)	28	67.9%	50.0%	0.059	.500 (.200, .800)
HIV testing	41	63.4%	39.0%	0.012	.263 (.008, .518)	28	75.0%	78.6%	0.739	.100 (-.291, .491)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their injection drug users and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their injection drug users

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their injection drug users and their continuing adult patients

Table 4: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of HIV+ patients, by physician specialty

Question	Family Practice					Pediatrics				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	49	51.0%	28.6%	0.005	0.393 (.164, .623)	5	20.0%	60.0%	0.157	.286 (-.251, .822)
Gender of sexual partners	49	44.9%	26.5%	0.007	.528 (.303, .754)	5	20.0%	40.0%	0.317	.546 (-.164, 1.00)
Specific sexual practices	49	32.7%	16.3%	0.021	.361 (.089, .633)	5	20.0%	40.0%	0.317	.546 (-.164, 1.00)
Risk factors of partners that may put [the patient] at increased risk of HIV	49	44.9%	32.7%	0.134	.323 (.063, .583)	5	20.0%	40.0%	-	1.00
Use of condoms	48	52.1%	47.9%	0.617	.335 (.069, .600)	5	20.0%	60.0%	0.157	.286 (-.251, .822)
History of sexually transmitted diseases	49	53.1%	46.9%	0.366	.553 (.322, .784)	5	20.0%	40.0%	0.317	.546 (-.164, 1.00)
Injection drug use	49	49.0%	49.0%	1.000	.428 (.175, .681)	5	20.0%	40.0%	0.317	.546 (-.164, 1.00)
HIV testing	46	54.4%	37.0%	0.033	.405 (.159, .650)	5	20.0%	40.0%	0.317	.546 (-.164, 1.00)

Question	Internal Medicine					Obstetrician/Gynecologist				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	41	39.0%	29.3%	0.157	.571 (.312, .829)	25	68.0%	64.0%	0.739	.199 (-.196, .595)
Gender of sexual partners	40	42.5%	22.5%	0.011	.455 (.194, .716)	25	48.0%	48.0%	1.00	.519 (.184, .855)
Specific sexual practices	40	32.5%	17.5%	0.034	.482 (.192, .772)	25	64.0%	28.0%	0.003	.359 (.102, .616)
Risk factors of partners that may put [the patient] at increased risk of HIV	39	43.6%	35.9%	0.366	.415 (.128, .702)	25	72.0%	60.0%	0.257	.386 (.021, .751)
Use of condoms	40	67.5%	45.0%	0.013	.372 (.118, .626)	25	76.0%	84.6%	0.180	.339 (-.097, .774)
History of sexually transmitted diseases	40	62.5%	52.5%	0.206	.494 (.228, .759)	25	80.0%	92.0%	0.083	.516 (.067, .966)
Injection drug use	40	57.5%	52.5%	0.617	.194 (-.109, .497)	25	60.0%	48.0%	0.180	.603 (.301, .906)
HIV testing	39	69.2%	38.5%	0.003	.246 (.006, .487)	25	72.0%	80.0%	0.317	.565 (.193, .937)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their HIV+ patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their HIV+ patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their HIV+ patients and their continuing adult patients

Table 5: Prevalence (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's, and kappa (95% CI) of patients with symptoms or diagnosis of an STD, adjusting by physician specialty

Question	Family Practice					Pediatrics				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	114	75.4%	34.2%	<.0001	.199 (.083, .314)	31	74.2%	50.1%	0.059	.510 (.213, .807)
Gender of sexual partners	114	60.5%	20.2%	<.0001	.259 (.121, .397)	31	58.1%	35.5%	0.020	.445 (.169, .722)
Specific sexual practices	114	41.2%	15.8%	<.0001	.342 (.190, .494)	31	54.8%	35.5%	0.014	.624 (.373, .874)
Risk factors of partners that may put [the patient] at increased risk of HIV	114	62.3%	32.5%	<.0001	.419 (.287, .550)	31	64.5%	41.9%	0.008	.569 (.315, .822)
Use of condoms	114	82.5%	50.9%	<.0001	.219 (.081, .358)	31	87.1%	80.7%	0.157	.763 (.455, 1.00)
History of sexually transmitted diseases	114	86.0%	51.8%	<.0001	.226 (.097, .356)	31	77.4%	67.7%	0.180	.600 (.291, .908)
Injection drug use	114	49.1%	43.8%	0.162	.560 (.409, .711)	30	43.3%	53.3%	0.180	.670 (.410, .929)
HIV testing	114	75.4%	28.1%	<.0001	.197 (.100, .294)	31	77.4%	41.9%	0.001	.348 (.113, .583)

Question	Internal Medicine					Obstetrician/Gynecologist				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	72	69.4%	26.4%	<.0001	.179 (.038, .320)	103	82.5%	43.7%	<.0001	.282 (.161, .403)
Gender of sexual partners	72	61.1%	18.1%	<.0001	.246 (.114, .378)	103	42.7%	35.0%	0.059	.368 (.290, .445)
Specific sexual practices	72	50.0%	12.5%	<.0001	.194 (.045, .344)	104	48.1%	26.0%	<.0001	.353 (.191, .516)
Risk factors of partners that may put [the patient] at increased risk of HIV	72	66.7%	30.6%	<.0001	.213 (.051, .376)	104	64.4%	32.7%	<.0001	.353 (.215, .491)
Use of condoms	72	84.7%	44.4%	<.0001	.252 (.113, .392)	104	94.2%	76.0%	<.0001	.324 (.121, .527)
History of sexually transmitted diseases	72	84.7%	51.4%	<.0001	.207 (.039, .375)	103	98.1%	84.5%	0.0002	.194 (-.038, .427)
Injection drug use	71	53.5%	50.7%	0.683	.323 (.103, .543)	104	47.1%	36.5%	0.028	.512 (.349, .674)
HIV testing	72	77.8%	34.7%	<.0001	.216 (.080, .353)	103	87.4%	53.4%	<.0001	.224 (.158, .290)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD and their continuing adult patients

Appendix I

Adjusting for physician gender

Table 1: Kappa (95% CI) and test of equal kappa (P), adjusting for physician gender

Table 2: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of men who have sex with men, by physician gender

Table 3: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of injection drug users, by physician gender

Table 4: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of HIV+ patients, by physician gender

Table 5: Prevalence ratio's (Prev 1, Prev 2 p-value of McNemar's test comparing prevalence's and kappa (95% CI) of patients with symptoms or diagnosis of an STD, by physician gender

Table 1: Kappa (95% CI) and test of equal kappa (P), adjusting for physician gender

Question	Men who have sex with men [‡]		Injection Drug Users		HIV+ patients		Patients with symptoms or diagnosis of an STD	
	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P
Number of sex partners	.417 (.259, .574)	0.706	.482 (.323, .640)	0.495	.432 (.275, .590)	0.296	.229 (.159, .299)	0.080
Gender of sexual partners	.471 (.317, .626)	0.163	.633 (.484, .783)	0.547	.494 (.338, .649)	0.672	.366 (.284, .449)	0.005
Specific sexual practices	.330 (.157, .504)	0.012	.554 (.393, .715)	0.061	.412 (.254, .569)	0.300	.342 (.256, .429)	0.079
Risk factors of partners that may put [the patient] at increased risk of HIV	.349 (.192, .507)	0.077	.437 (.277, .597)	0.117	.417 (.255, .578)	0.876	.361 (.283, .440)	0.021
Use of condoms	.398 (.249, .547)	0.796	.472 (.316, .628)	0.561	.357 (.192, .522)	0.051	.248 (.164, .331)	0.004
History of sexually transmitted diseases	0.565 (.432, .699)	0.692	.521 (.370, .672)	0.596	.571 (.421, .720)	0.329	.271 (.178, .364)	0.304
Injection drug use	.473 (.329, .616)	0.563	.357 (.203, .510)	0.171	.399 (.234, .563)	0.480	.508 (.414, .602)	0.218
HIV testing	.298 (.168, .427)	0.433	.226 (.073, .380)	0.801	.400 (.247, .552)	0.788	.239 (.172, .306)	0.966

[‡]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

P is the p-value for the test of equal kappa's, adjusting for physician gender

Table 2: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of men who have sex with men (MSM)[‡], by physician gender

Question	Men					Women				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	101	31.7%	29.7%	0.695	.395 (.203, .588)	43	37.2%	39.5%	0.763	.459 (.187, .732)
Gender of sexual partners	100	30.0%	22.0%	0.102	.381 (.182, .581)	42	42.9%	38.1%	0.475	.606 (.362, .850)
Specific sexual practices	101	22.8%	14.9%	0.117	.166 (-.050, .382)	43	18.6%	20.9%	0.655	.634 (.341, .927)
Risk factors of partners that may put [the patient] at increased risk of HIV	101	34.7%	27.7%	0.223	.243 (.046, .440)	42	38.1%	35.7%	0.739	.540 (.277, .804)
Use of condoms	101	51.6%	39.6%	0.029	.400 (.237, .582)	43	67.4%	67.4%	1.000	.365 (.070, .659)
History of sexually transmitted diseases	101	52.5%	36.0%	0.061	.547 (.387, .706)	43	58.1%	67.4%	0.157	.606 (.365, .846)
Injection drug use	101	51.2%	55.8%	0.527	.534 (.282, .786)	43	70.1%	50.6%	0.002	.284 (.098, .470)
HIV testing	101	44.6%	73.2%	<.0001	.265 (.112, .419)	43	34.9%	58.1%	0.008	.379 (.138, .621)

[‡]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their MSM patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Table 3: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of injection drug users, by physician gender

Question	Men					Women				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	87	34.5%	34.5%	1.000	.440 (.242, .638)	36	50.0%	38.9%	0.157	.556 (.291, .820)
Gender of sexual partners	87	29.9%	25.3%	0.285	.598 (.410, .786)	36	36.1%	33.3%	0.655	.694 (.447, .941)
Specific sexual practices	87	28.7%	20.7%	0.108	.418 (.204, .633)	36	33.3%	22.2%	0.046	.727 (.485, .970)
Risk factors of partners that may put [the patient] at increased risk of HIV	87	52.2%	44.8%	0.336	.339 (.138, .541)	36	44.4%	41.7%	0.706	.604 (.341, .866)
Use of condoms	87	42.5%	44.8%	0.683	.440 (.250, .630)	36	55.6%	66.7%	0.157	.539 (.266, .812)
History of sexually transmitted diseases	87	51.7%	54.0%	0.670	.493 (.310, .678)	36	58.3%	72.2%	0.059	.580 (.315, .845)
Injection drug use	87	70.1%	50.6%	0.002	.284 (.098, .470)	36	75.0%	58.3%	0.034	.515 (.241, .789)
HIV testing	87	60.9%	37.9%	0.001	.214 (.033, .395)	36	80.6%	58.3%	0.021	.258 (-.031, .546)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their injection drug users and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their injection drug users

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of both their injection drug users and their continuing adult patients

Table 4: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of HIV+ patients, by physician gender

Question	Men					Women				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	85	45.9%	34.1%	0.050	.372 (.178, .566)	35	57.1%	45.7%	0.157	.548 (.280, .817)
Gender of sexual partners	84	38.1%	26.2%	0.018	.517 (.328, .705)	35	55.6%	38.9%	0.058	.444 (.169, .720)
Specific sexual practices	84	34.5%	20.2%	0.005	.475 (.277, .672)	35	48.6%	20.0%	0.004	.302 (.043, .562)
Risk factors of partners that may put [the patient] at increased risk of HIV	83	45.8%	36.1%	0.103	.408 (.213, .603)	35	57.1%	45.7%	0.206	.436 (.147, .724)
Use of condoms	83	56.6%	48.2%	0.144	.448 (.259, .638)	35	71.4%	74.3%	0.782	.062 (-.278, .401)
History of sexually transmitted diseases	84	58.3%	53.6%	0.371	.518 (.335, .701)	35	65.7%	68.6%	0.655	.677 (.416, .937)
Injection drug use	84	52.4%	48.8%	0.564	.358 (.159, .557)	35	54.3%	51.4%	0.739	.485 (.195, .774)
HIV testing	84	61.9%	39.3%	0.0003	.388 (.215, .561)	31	61.3%	67.7%	0.480	.439 (.113, .766)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their HIV+ patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their HIV+ patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of both their HIV+ patients and their continuing adult patients

Table 5: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of patients with symptoms or diagnosis of an STD, by physician gender

Question	Men					Women				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	201	73.1%	28.9%	<.0001	.193 (.112, .274)	119	81.5%	52.9%	<.0001	.229 (.159, .299)
Gender of sexual partners	201	55.2%	22.4%	<.0001	.285 (.185, .385)	119	53.8%	40.3%	0.003	.536 (.391, .681)
Specific sexual practices	202	16.3%	18.8%	<.0001	.288 (.183, .394)	119	48.3%	22.7%	<.0001	.453 (.302, .604)
Risk factors of partners that may put [the patient] at increased risk of HIV	202	61.9%	28.7%	<.0001	.290 (.190, .389)	119	68.1%	40.3%	<.0001	.361 (.282, .440)
Use of condoms	202	81.7%	50.5%	<.0001	.332 (.231, .434)	119	90.6%	77.3%	<.0001	.075 (-.070, .220)
History of sexually transmitted diseases	201	85.6%	57.2%	<.0001	.301 (.192, .411)	119	94.1%	74.8%	<.0001	.193 (.019, .369)
Injection drug use	200	49.5%	41.5%	0.030	.459 (.337, .581)	119	47.9%	30.3%	0.842	.579 (.432, .726)
HIV testing	201	77.6%	35.3%	<.0001	.238 (.156, .320)	119	84.0%	45.4%	<.0001	.239 (.172, .306)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of both their patients with symptoms or diagnosis of an STD and their continuing adult patients

Appendix J

Adjusting for physician race

Table 1: Kappa (95% CI) and test of equal kappa (P), adjusting for physician race

Table 2: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of men who have sex with men, by physician race

Table 3: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of injection drug users, by physician race

Table 4: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of HIV+ patients, by physician race

Table 5: Prevalence ratio's (Prev 1, Prev 2 p-value of McNemar's test comparing prevalence's and kappa (95% CI) of patients with symptoms or diagnosis of an STD, by physician race

Table 1: Kappa (95% CI) and test of equal kappa (P), adjusting for physician race

Question	Men who have sex with men [‡]		Injection Drug Users		HIV+ patients		Patients with symptoms or diagnosis of an STD	
	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P
Number of sex partners	.420 (.263, .576)	0.564	.475 (.315, .635)	0.820	.434 (.277, .591)	0.526	.250 (.179, .321)	0.446
Gender of sexual partners	.474 (.321, .628)	0.330	.636 (.489, .784)	0.433	.505 (.352, .657)	0.802	.373 (.287, .460)	0.884
Specific sexual practices	.312 (.128, .495)	0.765	.514 (.348, .679)	0.584	.418 (.259, .577)	0.903	.345 (.257, .433)	0.709
Risk factors of partners that may put [the patient] at increased risk of HIV	.340 (.183, .497)	0.893	.442 (.293, .592)	0.099	.419 (.261, .576)	0.842	.354 (.276, .431)	0.407
Use of condoms	.424 (.279, .569)	0.336	.484 (.338, .630)	0.450	.372 (.203, .540)	0.487	.303 (.215, .392)	0.104
History of sexually transmitted diseases	.584 (.453, .716)	0.104	.525 (.377, .673)	0.481	.585 (.439, .731)	0.088	.284 (.190, .378)	0.806
Injection drug use	.475 (.328, .616)	0.890	.354 (.201, .507)	0.671	.393 (.229, .557)	0.974	.502 (.407, .596)	0.250
HIV testing	.303 (.175, .431)	0.664	.249 (.102, .397)	0.434	.394 (.234, .554)	0.396	.234 (.172, .301)	0.356

[‡]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

P is the p-value for the test of equal kappa's, adjusting for physician race

Table 2: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of men who have sex with men[‡], by physician race

Question	Non-white					White				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	39	25.6%	39.8%	0.480	.495 (.195, .796)	105	36.2%	33.3%	0.578	.392 (.208, .575)
Gender of sexual partners	39	25.6%	25.6%	1.000	.597 (.307, .887)	103	36.9%	27.2%	0.050	.427 (.245, .608)
Specific sexual practices	39	12.8%	20.5%	0.257	.361 (-.010, .731)	105	21.8%	15.2%	0.041	.296 (.085, .507)
Risk factors of partners that may put [the patient] at increased risk of HIV	39	33.3%	43.6%	0.248	.357 (.065, .649)	104	36.5%	25.0%	0.029	.333 (.147, .520)
Use of condoms	39	56.4%	53.8%	0.739	.534 (.268, .800)	105	56.2%	45.7%	0.056	.378 (.206, .550)
History of sexually transmitted diseases	39	61.5%	56.4%	0.564	.366 (.072, .660)	105	51.4%	48.6%	0.491	.638 (.492, .785)
Injection drug use	39	53.8%	38.7%	0.527	.139 (.216, .760)	105	46.7%	48.6%	0.706	.466 (.296, .635)
HIV testing	39	64.1%	46.2%	0.071	.247 (.035, .529)	105	56.2%	25.7%	<.0001	.317 (.174, .461)

[‡]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their MSM patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Table 3: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of injection drug users, by physician race

Question	Non-white					White				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	35	25.7%	44.0%	0.480	.442 (.118, .767)	88	44.3%	37.5%	0.201	.485 (.302, .669)
Gender of sexual partners	35	20.0%	25.7%	0.414	.516 (.182, .851)	88	36.4%	28.4%	0.052	.665 (.501, .830)
Specific sexual practices	35	14.3%	20.0%	0.317	.600 (.250, .950)	88	36.4%	21.6%	0.003	.489 (.301, .677)
Risk factors of partners that may put [the patient] at increased risk of HIV	35	25.7%	45.7%	0.052	.225 (-.074, .523)	88	47.7%	33.0%	0.005	.515 (.343, .688)
Use of condoms	35	31.4%	57.1%	0.007	.403 (.147, .660)	88	52.3%	48.9%	0.513	.523 (.346, .701)
History of sexually transmitted diseases	35	40.0%	62.9%	0.058	.441 (.164, .718)	88	56.8%	58.0%	0.819	.559 (.383, .734)
Injection drug use	35	42.9%	54.3%	0.248	.295 (-.016, .606)	88	73.9%	52.3%	0.0003	.373 (.197, .549)
HIV testing	35	62.9%	54.3%	0.366	.357 (.050, .665)	88	68.2%	39.8%	<.0001	.217 (.050, .385)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their injection drug users and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their injection drug users

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their injection drug users and their continuing adult patients

Table 4: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of HIV+ patients, by physician race

Question	Non-white					White				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	33	48.5%	36.4%	0.157	.511 (.226, .797)	87	49.2%	37.9%	0.050	.401 (.213, .588)
Gender of sexual partners	33	39.4%	30.3%	0.257	.537 (.242, .833)	86	45.4%	30.2%	0.005	.493 (.315, .671)
Specific sexual practices	33	33.3%	21.2%	0.157	.400 (.068, .723)	86	40.7%	19.8%	0.000	.424 (.242, .605)
Risk factors of partners that may put [the patient] at increased risk of HIV	33	51.5%	57.6%	0.527	.391 (.079, .704)	85	48.2%	31.8%	0.004	.428 (.246, .610)
Use of condoms	33	66.7%	63.6%	0.763	.267 (-.073, .607)	85	58.8%	52.9%	0.317	.406 (.212, .600)
History of sexually transmitted diseases	33	66.7%	66.7%	1.00	.318 (-.021, .658)	86	58.1%	54.7%	0.439	.646 (.484, .808)
Injection drug use	33	63.6%	51.5%	0.206	.389 (.083, .695)	86	48.8%	48.8%	1.00	.395 (.201, .589)
HIV testing	32	71.9%	56.3%	0.132	.273 (-.049, .595)	83	57.8%	43.4%	0.014	.433 (.250, .617)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their HIV+ patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their HIV+ patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their HIV+ patients and their continuing adult patients

Table 5: Prevalence ratio's (Prev 1, Prev 2 p-value of McNemar's test comparing prevalence's and kappa (95% CI) of patients with symptoms or diagnosis of an STD, by physician race

Question	Non-white					White				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	70	72.9%	41.4%	<.0001	.311 (.138, .484)	250	77.2%	36.8%	<.0001	.238 (.160, .315)
Gender of sexual partners	70	60.0%	32.9%	<.0001	.385 (.205, .564)	250	53.2%	28.0%	<.0001	.370 (.271, .469)
Specific sexual practices	70	50.0%	21.4%	<.0001	.314 (.132, .497)	251	45.8%	19.9%	<.0001	.354 (.254, .454)
Risk factors of partners that may put [the patient] at increased risk of HIV	70	70.0%	50.0%	0.002	.429 (.235, .623)	251	62.6%	28.3%	<.0001	.339 (.254, .424)
Use of condoms	70	87.1%	67.1%	0.0002	.463 (.251, .676)	251	87.3%	58.6%	<.0001	.269 (.171, .367)
History of sexually transmitted diseases	70	90.0%	68.6%	0.0003	.309 (.090, .528)	250	88.4%	70.9%	<.0001	.279 (.175, .383)
Injection drug use	69	60.9%	50.7%	0.127	.389 (.176, .603)	250	45.6%	41.6%	0.189	.529 (.423, .635)
HIV testing	70	80.0%	52.9%	<.0001	.320 (.132, .507)	250	80.0%	35.2%	<.0001	.226 (.157, .294)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

P is the p-value of the McNemar's test comparing Prev 1 to Prev 2

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD and their continuing adult patients

Appendix K

Adjusting for physician census region

Table 1: Kappa (95% CI) and test of equal kappa (P), adjusting for physician census region

Table 2: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of men who have sex with men, by physician census region

Table 3: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of injection drug users, by physician census region

Table 4: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of HIV+ patients, by physician census region

Table 5: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of patients with symptom's or diagnosis of an STD, by physician census region

Table 1: Overall kappa (95% CI) and test of equal kappa (P), adjusting for physician census region

Question	Men who have sex with men [†]		Injection Drug Users		HIV+ patients		Patients with symptoms or diagnosis of an STD	
	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P	Kappa (95% CI)	P
Number of sex partners	.443 (.290, .595)	0.167	.501 (.346, .655)	0.264	.430 (.274, .587)	0.974	.246 (.175, .317)	0.178
Gender of sexual partners	.510 (.364, .657)	0.094	.623 (.471, .776)	0.993	.521 (.372, .670)	0.412	.373 (.287, .458)	0.673
Specific sexual practices	-.026 (-.129, .077)	<.0001	.537 (.371, .702)	0.275	.397 (.242, .552)	0.482	.336 (.253, .418)	0.004
Risk factors of partners that may put [the patient] at increased risk of HIV	.346 (.193, .499)	0.046	.428 (.269, .587)	0.702	.443 (.287, .598)	0.151	.356 (.277, .435)	0.919
Use of condoms	.467 (.330, .604)	0.044	.532 (.387, .677)	0.069	.379 (.212, .545)	0.887	.304 (.215, .393)	0.494
History of sexually transmitted diseases	.584 (.453, .715)	0.550	.524 (.374, .674)	0.792	.584 (.437, .731)	0.593	.253 (.164, .341)	0.243
Injection drug use	.487 (.346, .628)	0.383	.348 (.200, .495)	0.227	.432 (.281, .583)	0.084	.510 (.417, .603)	0.493
HIV testing	.299 (.177, .420)	0.495	.225 (.083, .366)	0.600	.440 (.300, .579)	0.040	.239 (.173, .306)	0.674

[†]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

P is the p-value for the test of equal kappa's, adjusting by physician census region

Table 2: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of men who have sex with men (MSM)[‡], by physician census region

Question	Northeast					South				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	30	40.0%	36.7%	0.655	.648 (.368, .928)	51	29.4%	27.5%	0.763	.470 (.203, .738)
Gender of sexual partners	30	36.7%	30.0%	0.317	.702 (.433, .970)	50	36.0%	26.0%	0.096	.584 (.347, .821)
Specific sexual practices	30	23.3%	26.7%	0.655	.556 (.213, .900)	51	23.5%	16.7%	0.157	.507 (.216, .798)
Risk factors of partners that may put [the patient] at increased risk of HIV	30	36.7%	36.7%	1.00	.569 (.264, .875)	50	34.0%	30.0%	0.564	.450 (.186, .713)
Use of condoms	30	50.0%	50.0%	1.00	.733 (.490, .977)	51	52.9%	49.0%	0.593	.452 (.208, .696)
History of sexually transmitted diseases	30	53.3%	60.0%	0.317	.730 (.486, .974)	51	47.1%	45.1%	0.782	.487 (.247, .727)
Injection drug use	30	50.0%	43.3%	0.142	.600 (.316, .884)	51	49.0%	49.0%	1.000	.528 (.294, .761)
HIV testing	30	53.3%	40.0%	0.206	.342 (.197, .665)	51	62.8%	29.4%	<.0001	.326 (.132, .520)

Question	Midwest					West				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	32	37.5%	40.6%	0.782	.148 (.198, .494)	31	29.0%	29.0%	1.000	.374 (.018, .730)
Gender of sexual partners	31	32.3%	25.8%	0.527	.221 (.141, .583)	31	29.0%	25.8%	0.739	.272 (-.097, .640)
Specific sexual practices	32	18.8%	15.6%	0.763	.206 (.327, .084)	31	19.4%	9.7%	0.257	.107 (-.278, .492)
Risk factors of partners that may put [the patient] at increased risk of HIV	32	40.6%	25.0%	0.197	.035 (.357, .288)	31	32.3%	29.0%	0.739	.318 (-.038, .674)
Use of condoms	32	59.3%	46.9%	0.248	.259 (.064, .582)	31	64.5%	45.2%	0.083	.247 (-.066, .560)
History of sexually transmitted diseases	32	56.3%	46.9%	0.257	.566 (.286, .845)	31	64.5%	54.8%	0.257	.535 (.240, .831)
Injection drug use	32	46.9%	46.9%	1.000	.498 (.197, .799)	31	51.6%	58.1%	0.564	.222 (-.119, .563)
HIV testing	32	37.5%	34.4%	0.096	.438 (.142, .734)	31	64.5%	22.6%	0.001	.165 (-.056, .386)

[‡]Obstetrician-gynecologists were removed from analysis because they do not treat male patients

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their MSM patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their MSM patients and their continuing adult patients

Table 3: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of injection drug users, by physician census region

Question	Northeast					South				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	24	33.3%	37.5%	0.564	.727 (.441, 1.00)	43	41.9%	44.2%	0.763	.479 (.214, .743)
Gender of sexual partners	24	25.0%	20.8%	0.564	.647 (.283, 1.00)	43	37.2%	37.2%	1.000	.602 (.355, .849)
Specific sexual practices	24	25.0%	16.7%	0.157	.750 (.429, 1.00)	43	41.9%	30.2%	0.166	.354 (.075, .633)
Risk factors of partners that may put [the patient] at increased risk of HIV	24	37.5%	50.0%	0.180	.583 (.269, .898)	43	48.8%	39.5%	0.285	.346 (.070, .622)
Use of condoms	24	41.7%	50.0%	0.317	.667 (.373, .961)	43	51.2%	53.5%	0.808	.208 (-.084, .500)
History of sexually transmitted diseases	24	50.0%	62.5%	0.257	.417 (.065, .769)	43	55.8%	62.8%	0.366	.473 (.208, .737)
Injection drug use	24	75.0%	50.0%	0.014	.500 (.200, .800)	43	67.4%	60.5%	0.366	.448 (.174, .722)
HIV testing	24	58.3%	45.8%	0.317	.260 (-.112, .633)	43	32.6%	46.5%	0.029	.228 (-.035, .491)

Question	Midwest					West				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	29	48.3%	37.9%	0.317	.374 (.043, .706)	27	29.6%	18.5%	0.257	.303 (-.088, .694)
Gender of sexual partners	29	37.9%	27.6%	0.180	.613 (.315, .911)	27	22.2%	18.5%	0.564	.658 (.304, 1.00)
Specific sexual practices	29	27.6%	20.7%	0.317	.626 (.297, .954)	27	18.5%	11.1%	0.317	.419 (-.042, .880)
Risk factors of partners that may put [the patient] at increased risk of HIV	29	44.8%	31.0%	0.157	.426 (.104, .748)	27	29.6%	25.9%	0.706	.355 (-.032, .742)
Use of condoms	29	48.3%	51.7%	0.706	.518 (.207, .828)	27	40.7%	48.2%	0.317	.702 (.435, .968)
History of sexually transmitted diseases	29	62.1%	62.1%	1.000	.561 (.250, .872)	27	44.4%	48.2%	0.655	.628 (.335, .921)
Injection drug use	29	65.5%	44.8%	0.058	.332 (.022, .642)	27	81.5%	51.9%	0.021	.090 (-.211, .390)
HIV testing	29	72.4%	58.6%	0.157	.402 (.071, .733)	27	66.7%	22.2%	0.001	.125 (-.103, .353)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their injection drug users and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their injection drug users

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their injection drug users and their continuing adult patients

Table 4: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of HIV+ patients, by physician census region

Question	Northeast					South				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	25	56.0%	44.0%	0.257	.448 (.110, .786)	47	44.7%	36.2%	0.285	.386 (.123, .649)
Gender of sexual partners	25	56.0%	36.0%	0.096	.303 (-.036, .643)	47	36.2%	29.8%	0.366	.473 (.209, .738)
Specific sexual practices	25	52.0%	24.0%	0.008	.451 (.163, .740)	47	31.9%	19.2%	0.058	.452 (.177, .728)
Risk factors of partners that may put [the patient] at increased risk of HIV	25	56.0%	48.0%	0.480	.363 (.003, .723)	46	43.5%	37.0%	0.317	.595 (.361, .829)
Use of condoms	25	60.0%	56.0%	0.706	.426 (.069, .784)	47	57.5%	57.5%	1.000	.304 (.029, .579)
History of sexually transmitted diseases	25	64.0%	60.0%	0.706	.407 (.040, .773)	47	55.3%	55.3%	1.000	.570 (.333, .806)
Injection drug use	25	64.0%	40.0%	0.083	.091 (-.253, .435)	47	44.7%	51.1%	0.366	.533 (.293, .773)
HIV testing	25	64.0%	60.0%	0.763	.068 (-.325, .460)	45	55.6%	48.9%	0.366	.512 (.264, .761)

Question	Midwest					West				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	17	52.9%	47.1%	0.655	.414 (-.015, .843)	31	48.4%	29.0%	0.034	.477 (.190, .764)
Gender of sexual partners	17	52.9%	35.3%	0.083	.653 (.319, .987)	30	40.0%	23.3%	0.025	.627 (.350, .904)
Specific sexual practices	17	47.1%	35.3%	0.317	.521 (.124, .919)	30	33.3%	10.0%	0.02	.182 (-.133, .496)
Risk factors of partners that may put [the patient] at increased risk of HIV	17	52.9%	41.2%	0.317	.532 (.145, .923)	30	50.0%	33.3%	0.166	.133 (-.201, .468)
Use of condoms	17	70.6%	52.8%	0.317	.493 (.076, .909)	29	62.1%	51.7%	0.317	.374 (.043, .706)
History of sexually transmitted diseases	17	70.6%	58.8%	0.157	.746 (.427, 1.00)	30	60.0%	60.0%	1.00	.583 (.286, .880)
Injection drug use	17	58.8%	41.2%	0.083	.658 (.348, .988)	30	53.3%	60.0%	0.527	.324 (-.013, .662)
HIV testing	16	62.5%	50.0%	0.157	.750 (.436, 1.00)	29	69.0%	31.0%	0.0009	.337 (.106, .568)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their HIV+ patients and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their HIV+ patients

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of their HIV+ patients and their continuing adult patients

Table 5: Prevalence ratio's (Prev 1, Prev 2), p-value of McNemar's test comparing prevalence's and kappa (95% CI) of patients with symptom's or diagnosis of an STD, by physician census region

Question	Northeast					South				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	71	76.1%	39.4%	<.0001	.239 (.079, .398)	110	75.5%	38.2%	<.0001	.302 (.180, .425)
Gender of sexual partners	71	64.8%	31.0%	<.0001	.342 (.180, .503)	110	52.7%	30.0%	<.0001	.448 (.301, .596)
Specific sexual practices	71	56.3%	19.7%	<.0001	.266 (.111, .424)	111	44.1%	27.0%	<.0001	.562 (.414, .710)
Risk factors of partners that may put [the patient] at increased risk of HIV	71	73.2%	42.3%	<.0001	.369 (.201, .538)	111	62.2%	32.4%	<.0001	.386 (.250, .522)
Use of condoms	71	87.3%	66.2%	0.000	.443 (.235, .651)	111	85.6%	56.8%	<.0001	.243 (.095, .390)
History of sexually transmitted diseases	71	97.2%	69.0%	<.0001	.121 (-.035, .277)	110	86.4%	60.0%	<.0001	.298 (.143, .453)
Injection drug use	70	54.3%	41.4%	0.039	.465 (.266, .664)	110	50.9%	45.5%	0.201	.601 (.452, .749)
HIV testing	71	83.1%	45.1%	<.0001	.233 (.082, .385)	111	79.3%	40.5%	<.0001	.270 (.151, .389)

Question	Midwest					West				
	n	Prev 1	Prev 2	P	Kappa (95% CI)	n	Prev 1	Prev 2	P	Kappa (95% CI)
Number of sex partners	79	74.7%	39.2%	<.0001	.313 (.164, .463)	60	80.0%	33.3%	<.0001	.111 (-.034, .256)
Gender of sexual partners	79	49.4%	26.6%	0.0004	.338 (.153, .523)	60	53.3%	28.3%	0.001	.320 (.113, .526)
Specific sexual practices	79	39.2%	16.5%	0.0004	.231 (.035, .426)	60	50.0%	13.3%	<.0001	.200 (.031, .369)
Risk factors of partners that may put [the patient] at increased risk of HIV	79	64.6%	31.7%	<.0001	.314 (.156, .472)	60	56.7%	25.0%	<.0001	.344 (.161, .527)
Use of condoms	79	87.3%	59.5%	<.0001	.292 (.115, .469)	60	90.0%	61.7%	<.0001	.303 (.102, .504)
History of sexually transmitted diseases	79	84.8%	63.3%	<.0001	.348 (.150, .545)	60	88.3%	65.0%	0.0005	.307 (.083, .532)
Injection drug use	79	40.5%	41.8%	0.827	.451 (.252, .651)	60	33.0%	45.0%	0.467	.433 (.206, .660)
HIV testing	78	78.2%	35.9%	<.0001	.270 (.141, .399)	60	80.0%	33.3%	<.0001	.167 (.028, .305)

n refers to the number of physicians, in the past three months, that reported they had "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD and their continuing adult patients

Prev 1 is the number of physicians who "Always/Often" asked each risk assessment question of their patients with symptoms or diagnosis of an STD

Prev 2 is the number of physicians who "Always/Often" asked each risk assessment question of their continuing adult patients

Kappa is the level of agreement among physicians who "Always/Often" asked each risk assessment question of both their patients with symptoms or diagnosis of an STD and their continuing adult patients